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THE RECALL OF INTERRUPTED GROUP TASKS: AN EXPERIMENTAL STUDY OF INDIVIDUAL MOTIVATION IN RELATION TO GROUP GOALS[1]

MURRAY HORWITZ

PROBLEM

The general problem considered in this research is the following: Can the motivational concepts which have been developed for individuals who are acting for their *own goals* be applied to individuals who are acting so that a group will achieve *group goals*?

The concept of group goals appear in one form or another in most theories of group functioning. Barnard's (3) concept of group effectiveness and Homans' (11) of group activities both involve the notion of particular outcomes which the group can achieve in its external environment. French (9), in his studies of group productivity, makes explicit use of the concept of group goals, assigning to them properties similar to those of individual goals, but distinguishing conceptually the two types of goals by locating each in a different type of environment. He follows Lewin (17) in describing the individual's behavioral environment in terms of the possible activities existing for the person, and locomotion through this environment as a change in the person's position in the sense of moving from one activity to another. The individual's goal is treated as a consummatory activity which terminates a sequence of other activities which lead up to it. Analogously the group's behavioral environment is regarded as consisting of possible activities in

1. This paper is based on a Ph.D. dissertation done at the University of Michigan. The author is indebted to Dr. Dorwin Cartwright for many helpful suggestions through all phases of this research, and wishes to acknowledge the special contribution of Dr. Harold H. Kelley who collaborated in developing the experimental tasks.

which the group can engage. Group activities, however, are not carried on by the separate activities of individual members, but by the organization of these individual actions within the group. Locomotion toward a group goal involves a change of position by the group, and for this reason, although a member may contribute in some degree to the group moving toward its goal, neither the locomotion nor the goal can be said to be achievable by any individual in the group. As in the case of an individual goal, the group goal is consummatory in that it terminates a sequence of group activities.

A number of studies have examined the motivation of group members as related to group goals. Lippitt (20) found that in certain types of children's groups members persisted in working on a group task although the leader had left the room, while in others work ceased when pressure from the leader was removed. The studies by Katz (13) and the numerous investigations of "group identification" reported by Sherif and Cantril (25) are representative of other researches which indicate that under some conditions members can become motivated in terms of group goals, while under other conditions they act without such motivation. From the standpoint of motivational theory in individual psychology, these studies raise the problem of how goals which represent changes in the state of a group can be conceptually linked with goals which are consummatory activities of the person himself.

In individual psychology, the existence of some internal system in tension, e.g., a need, is usually taken as a necessary condition for the person's having a goal. According to this view tension systems result in the individual's "cathecting" some goal in the environment, and tendencies are then aroused for the person to locomote toward this desirable outcome. Lewin (16) has given a rather elaborate systematic treatment of the properties of tension systems, based primarily on experiments which have treated the individual in isolation from the social field. In measuring tension systems, the Lewinian experiments on individuals involve the general procedure of providing the subject with a series of tasks which he desires to complete, having the subject engage in activities directed to this end, and interrupting some of the tasks but allowing others to be completed. There are several features of this experimental procedure which prevent our generalizing the results obtained to the behavior of individuals in a goal-setting group:

a. The "interrupted task" experiments indicate that individuals develop tension systems coordinated to reaching their own goals. Group goals as we have seen cannot be attained by an individual. The question is raised whether individuals can develop tension systems coordinated to the group's attaining its goal. And if so, does the group reaching its goal reduce tension in the same way as "consummation" by the individual?

b. In experiments with individuals, the subject engages in a sequence of activities which will enable him to complete the task. The individual's environment is regarded as a stable and relatively invariant frame of reference, locomotion being treated as the person changing his position within

this environment. A characteristic of behavior in a social field, however, is that desirable or undesirable states of affairs may come about by changes in the social environment, independently of the individual's action. A change in the person's position, i.e., locomotion, can occur not only by his entering into a new activity, but by the "ground moving under his feet". Even though the person is himself inactive, he may find himself psychologically "carried" toward or away from a goal or toward or away from an avoidance by the action of the group. The results of experiments with individuals do not permit us to answer the question—will tension systems be reduced where the person has not actively completed the task, but has to some degree been "carried" by the group into a condition in which the task has been completed?

c. In the individual experiments the tension systems which are measured are coordinated to completing a task. In a group situation a person may wish to avoid completing a task, which he may nevertheless be obliged to complete by virtue of his membership in the group. If tension systems exist coordinated to avoiding a task, one would expect these avoidance tensions to have somewhat different properties from goal tensions. For where non-entry into the region of negative valence should reduce an avoidance tension, non-entry into the region of positive valence should leave the goal tension unreduced. On the other hand, entering a region of negative valence should leave an avoidance tension unreduced, although entering a region of positive valence should reduce the goal tension. The experimental procedure used with individuals has made it difficult to investigate avoidance tensions. Do tension systems, in fact, exist for avoidances as well as goals? If so, what are the properties of avoidance tensions?

d. In the individual experiments S is either allowed to choose his own tasks, or is provided tasks in which he will be interested, i.e., which he is judged likely to choose as his own. However, a group may set a goal in the absence of an individual member's tension system, or even in opposition to it. Thus differences may occur between the particular goals set by the group and the goals which the individual desires the group to set. What, if any, are the effects on tension systems of members' attitudes toward undesired group goals?

In this study a method is proposed for conceptually treating the relationships between individual goals and group goals. An experiment is described which is designed to test the consequences of these concepts for the questions stated above.

PREVIOUS RESEARCH

Zeigarnik (27), in the earliest experimental work using the tension system construct, coordinated to the person striving toward a goal an inner-personal system in a state of tension. If the person reaches the goal, the tension is assumed to be reduced; if he is interrupted short of the goal, the system

remains in a state of tension. Zeigarnik demonstrated that interrupted tasks are more frequently recalled than completed tasks, and in a number of experiments which were intended to confirm derivations based on the tension system construct, the relative recall of interrupted versus completed tasks was used to measure the existence or reduction of tension.

The question of the effects of events in the social field on the arousing of tension systems in the person was first explicitly raised by Adler and Kounin (1). These investigators found that another person's unfinished task failed to arouse tension systems in an observer. Lewis (18) was justly critical of the conclusions drawn from the negative results of this experiment in which there was little interdependence between the two individuals involved. Lewis set up an experimental situation in which a subject worked on a set of tasks half of which he finished, the other half being interrupted by a cooperating partner who proceeded himself to finish the tasks. No significant difference was found between recall by a subject of tasks which he completed personally and those which were interrupted and completed by his partner. If, in fact, the subject had an initial tension system to complete each of the various tasks—which assumption, in view of the difficulties of producing the Zeigarnik effect, is always open to question—then Lewis is justified in interpreting the result to mean that one's tension-system can be reduced by another person reaching the goal. This still leaves open the question whether tension systems can be aroused for non-personal goals. In a second experiment, Lewis and Franklin (19) had the subject, S, and one of the experimenters, E^1, work together on the tasks. The second experimenter, E^2, interrupted half the tasks, setting them aside. The number of subjects who recalled more interrupted than finished tasks proved to be significantly above chance. This experiment touches directly on the question—given a group goal, does an individual develop tension systems coordinated to the group reaching its goal?

Unfortunately, although this second experiment points to a method for investigating the question, it does not provide the answer. In analyzing the task structures of the eighteen problems, Lewis indicates that some of the problems were seen by the subject as allowing the two partners differential responsibility for the results. Tasks which required an exchange of ideas between S and E^1 might not, for example, incorporate some of S's ideas in the solution. They might therefore be regarded by S as unfinished, leaving him with an undischarged tension. Other tasks might be seen as consisting of separate halves, one belonging to S, the other to E^1. In the words of one subject, "Some we divided up and you finished your part, and I finished mine." One cannot therefore determine whether the tension systems aroused in Lewis' experiment were related to a desire to complete a group task or to complete some part of a group task which was regarded by the individual as his personal goal.

Bavelas (4) has reported a type of group task in which it is impossible to

identify any individual's contribution to the outcome. Each of a group of subjects, none of whom could see each other, selected a number from 1 to 10, and showed the selected number to the experimenter. The group goal was to produce a sum of these numbers equal to some target number, say 25. After each trial the experimenter announced whether the sum of numbers chosen by the subjects was smaller or larger than the target number. The trials were repeated until the target number was equalled. The goal in Bavelas' task can be achieved by a group, but not by an individual, and does not have any aspect the completion of which can take on the character of a personal goal. Bavelas' task could not be used directly in the present experiment since we wished to measure tension by recall of tasks, and tasks which the subject can identify only in terms of different numbers do not lend themselves to a test of recall. The modified procedure used in this experiment is described below.

EXPERIMENTAL PROCEDURE

Subjects

The subjects were female students recruited in groups of five from sororities at the University of Michigan. There were eighteen such groups, two of which lacked one member. The experiment was explained as a test of group cooperativeness which would be judged by the quality of the group's performance in working together on a number of jig-saw puzzles. The situation was presented as a contest,[2] in which each team represented its sorority. In the main the teams consisted of volunteers, although in some instances they contained persons specifically designated by sorority officers.

Developing Motivation for the Group Task

Upon entering the experimental room the subjects were engaged in a group discussion for about fifteen minutes designed to heighten their awareness as group members.

> Such leading questions were asked as: "I'd like you to tell me something about yourselves as a group. For example, what sort of things do you do together?"; "Do you get experience in committees or in working together on projects?"; "How do you feel about living in sororities versus dormitories?"; "Do you get group experiences in sororities that you would not get in a dormitory?"; "Are there differences in prestige among sororities?", "How does this happen?"; "How does your sorority rate as compared with others?"

2. For the standardized procedures adopted for recruiting and for other of the experimental manipulations, and for a detailed discussion of the reasons for adopting these procedures, see the unpublished doctoral dissertation on which this article is based. Horwitz, M., *The Effects of Group Goal-Setting and Locomotion in Motivational Processes in the Individual.* Microfilm of complete manuscript, 144 pp., $1.80, University microfilms, Ann Arbor, Michigan. Publication No. 1975.

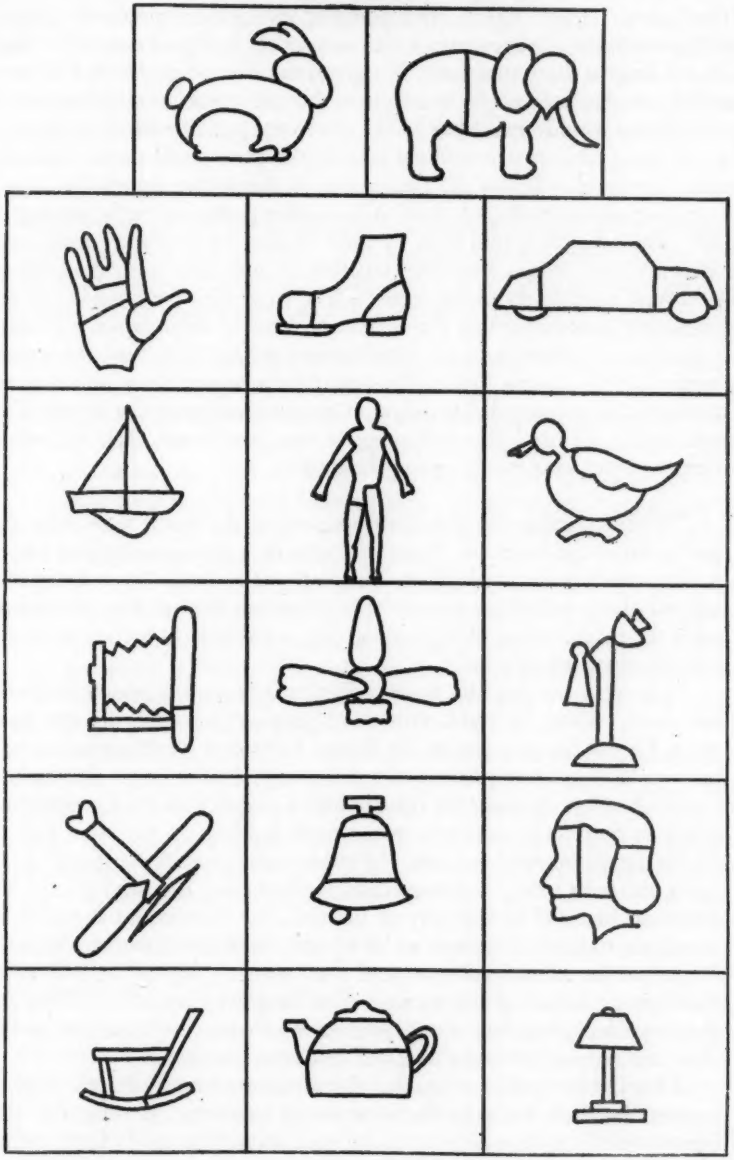
After the five subjects appeared to be thoroughly involved in the discussion about their group, they were asked to take seats in one of five booths set side by side. Partitions between them prevented subjects from seeing each other, but all could see the experimenter who took his place at a table in front of the booths. At each work place within a booth was a one-page questionnaire, entitled "Test on Group Loyalty", which was aimed at increasing the subjects involvement in working toward a group goal. The questionnaire contained five scales on which the subjects were asked to rate "the loyalty and team spirit of your group", "your respect for the will of the group", "your readiness to go along with a group decision with which you disagree", and finally, "how much you desire the group to do well on this test".

Explaining the Procedure on the Task

A cardboard poster (size 14″ × 14″) was attached by means of a spring clip to a display board on the experimenter's table. Drawn on the poster was the outline of a figure, sectioned into five parts to represent a jig-saw puzzle. There were seventeen such figures, two of which were used for demonstration purposes (*Fig.* 1). The group's task was to attempt to direct the experimenter in filling in each of these "target" figures one piece at a time. Each subject communicated with the experimenter by a system of signals without knowledge of what others in the group were signalling. Since we wished the subjects to accept this unusual situation of a group task performed without communication among members, the instructions opened with the following "explanation":

> "Now let me tell you about the problems we will be working on. In the first place, they are *group* problems to test group action and no single person is tested. In this test we want to get at the effects of different kinds of group experiences on a very specific phase of cooperation.
>
> "We know that quite a large part of the mutual adjustment that goes on in good groups is done *without* talking. For example, good friends have to do a lot less explaining of their intentions to each other than strangers. Or a good team, say a basketball team, can do a very fine job of coordination by anticipating what the others will do. This means that one test of the level of cooperation in a group is that more and more coordination can occur with less and less talking—that is, by means of what we call 'implicit communication'.
>
> "In this test we are going to try to isolate that factor. We are going to see how well the group can do when your communication is limited, and you can only adjust to each other by fairly subtle and indirect clues. That is why these partitions are set up among you—and I would like to ask you to keep talking down to a minimum during the test. We have had a large number of sororities on these problems, and I am sure this group too will perform above average."

FIG. 1 EXPERIMENTAL FIGURES



In an envelope at her workplace each subject had four differently shaped pieces of cardboard, each of which was cut out to correspond with a section of the jig-saw "target" figure. By holding up one of these pieces, the subject could signal to the experimenter which section of the figure should be filled in. According to the instructions, if a given number of people and *no more* than that number held up the same piece, then the corresponding section of jig-saw figure would be filled in by the experimenter. The effect of this rule was that those subjects who had *not* held up the piece could claim credit for keeping the number below the maximum, so that it was impossible to say that any member contributed more than another to the successful placing of a piece. The subjects would hold up their choices on successive trials, and the experimenter would announce whether or not the correct number of subjects were holding up the same piece. The trials were continued until the experimenter announced that the correct number of subjects were holding up a given piece, whereupon the experimenter would fill in the corresponding section of the jig-saw figure. The group then engaged in a second series of trials until they succeeded in filling in another section of the figure. This process continued until the entire figure was completed. The following instructions were used in explaining these rules:

> "Will you take the first envelope out of the box? Now take the pieces out of the envelope. You will notice they are jig-saw pieces which go into making up an elephant. The elephant is divided into five parts, and you have only four pieces—so you can see that no one person can solve the puzzle alone. Within the group as a whole, however, there are enough pieces to solve it.
>
> "The way the elephant is put together is that each person holds up one piece. When the right number of people are holding up the same piece, I'll put the piece on to the figure. Now just for example choose a piece to hold up. Any piece at all will do now. This is just an illustration.
>
> "O.K. Now in order for the first piece to go on to the figure we are going to need two, and only two, people holding up the same piece." (If this condition were not met, the experimenter asked the group to try again, the trails being continued until the first piece had been placed. To maintain the level of difficulty of the task, the instructions required an increasing number of people to be in agreement on subsequent pieces.) "Now for the second piece we need three people to agree" . . . "For the third piece, we are going to need four people to agree" . . . "For the fourth piece, again, four people will have to agree." (Placement of the fifth, and only remaining piece, was of course automatic.)
>
> After the group had completed this demonstration figure, the experimenter discussed the possible methods of solution. "As you see, this figure could have been filled in in different ways. You might have started with the head, and then worked back in a straight-line sequence, up or

down. On some you may want to start in the center and work outward, and so on. There will be a great number of possibilities for each of the different figures we will be working on.

"Of course, these puzzles can be solved entirely by chance. If five robots, for example, just held up pieces at random, they would eventually solve the problem—although it might take quite a long time. That is your problem as a group—to do better than just chance."

Explaining the Method of Voting and Scoring

After the procedure on the puzzles had been explained to the group, the method of scoring was described. The method entailed taking a vote at the midpoint of each of the fifteen puzzles, and was designed to allow members to express their personal decisions either for or against completing the puzzle.

"Let me tell you about the scoring. Each puzzle has a basic score of fifty points. This is obtained on the basis of only a *part* of the group's performance. In other words, we can stop without completing the puzzle, and we'll have the basic score. However, if the group wishes to complete the puzzle you may do so. This is entirely up to the group to decide.

"We have a system of bonus points. *If* you decide to complete the puzzle, and if you do well, you get a bonus of ten points. If you do not do well, there's a penalty of five points.

"I can tell you on the experience of other groups that the group will help itself best by considering this vote carefully. You can't lose too much by completing the puzzle. But if you're not sure, it's better to vote not to complete, and to allow the work to stop at the basic score. You should vote to complete only if you believe there's a good chance that the group will earn the bonus.

"Naturally there will be differences of opinion among you about the vote. In a group action of this sort, the majority vote will probably result in the most satisfactory set of decisions. Is that O.K. with everybody?" (The experimenter obtained an explicit indication of assent from each subject.) "O.K. then, it's agreed that we'll abide by the majority decision. Let's try another demonstration puzzle."

A second demonstration was given to enable the subjects to learn the procedure in solving the task, and to set up the routine on voting. Votes were always taken after two of the five pieces had been placed on the figure, the experimenter announcing, "I have the basic score; does the group want to stop here or complete the puzzle?" The subjects voted, without knowledge of how their fellow members were voting, by raising their right hands if they wished to continue work or their left hands if they wished to stop. The experimenter then announced the outcome of the vote. If the announced majority decision was to "complete the puzzle", work was continued in

trying to place the third piece; if the announced decision was to stop, the puzzle was set aside, and work was begun on the next puzzle.

Administering the Experiment

In signalling their individual choices, both in filling in the figure and in voting, the subjects could not see each other, and had to depend entirely on the experimenter for announcement of the results. The experimenter was therefore able to make his announcements according to a prearranged experimental plan. Standard sequences for filling in the various sections of the figure were planned in advance for all groups. After from four to six trials, irrespective of the actual pieces being held up by the subjects, the experimenter would announce that the correct number of subjects were holding up the piece which had been selected in advance, and the experimenter would then set this piece on the figure. Although nothing the group did made any difference in how the pieces were being placed on the figure, the experimenter's control of the "feedback" served to maintain the illusion that the group was solving the task in its own way. In a similar fashion, it was possible to follow a pre-arranged experimental plan in announcing the results of the voting. On five puzzles selected in advance, no matter how the group actually voted, the group was told that a majority had voted "no", or *not* to go on with the work. On ten selected puzzles, the group was told that a majority had voted "yes", in favor of continuing work. Of these ten tasks, the group completed half, and half were interrupted by the experimenter. The interruption, which came in the middle of work on the third piece, was described by the experimenter as temporary and the subjects were told they would return to their work later.[3]

There were thus three treatments for the fifteen tasks: an announced "yes" vote, followed by completion of the task; an announced "yes" vote, followed by partial completion; an announced "no" vote, with work stopping. At the end of the series of tasks, the subjects were requested individually to recall the names of the jig-saw figures on which they had been working. The instructions were designed to minimize the likelihood that the subjects would perceive the recall as a "memory test" which, as Zeigarnik (27) has shown, tends to equalize recall of finished and unfinished tasks.

> "Let's pause here for a moment . . . We generally stop somewhere in the middle of the test to ask about your reactions up to this point. I have some questionnaires on which I'd like to get your ratings of the different puzzles we've worked on so far. In giving your opinions, just sit back and relax, and put down whatever comes to your mind.

3. Experience during the pre-test of this experiment was consistent with Cartwright's (6) observation that tensions appear to be reduced if the task is seen as "spoiled". Efforts were thus made to present the interruption so that resumption on the task would appear to be possible.

"I'd like you to go about filling in these ratings in a certain way. First, I'll give you each a sheet of scrap paper . . . (sheets passed out) . . . Now when you do the ratings, I'd like you to have something concrete to refer to. So first of all would you jot down on this scrap of paper the names of any of the jig-saw figures that we worked on that come to your mind? Just put them down in any order at all. Don't bother straining to remember them—any number of names will do." A minute and a half was allowed for writing down the names.

The lists of recalled tasks constituted the basic data of the experiment. Each task on a subject's list could be identified as one for which the experimental treatment had been an announced "no" vote with cessation of work (designated hereafter as N tasks), an announced "yes" vote with completion (designated as Y–C tasks), or an announced "yes" vote with interruption (designated as Y–I tasks). These three types of tasks could be further broken down into six groups, according to whether the subject's personal vote on each had been "yes" or "no". In addition, data were available from a questionnaire administered after the experiment, which attempted to ascertain the subject's reactions to supposedly crucial features of the experimental situation, and in particular, their feelings about announced group votes which differed from their own votes.

EXPERIMENTAL DESIGN

The strength of recall of tasks for a given treatment is measured by the ratio:

$$\frac{\textit{Number of recalled tasks in the given treatment}}{\textit{Total number of tasks in the given treatment}}$$

Since recall will be affected by the serial order of the tasks and by the "intrinsic" recall value of particularly striking figures, it was necessary to equalize these two factors among the three treatments. This could be achieved by presenting the fifteen jig-saw figures in the same order for all eighteen groups, but alternating the treatment in successive groups. Thus a given task would be treated in one group as a Y–C task, in the next group as a Y–I task, and in the next as an N task. By this method, a complete rotation of treatments would occur for every three groups. If we measure strength of recall by averaging recall ratios of all subjects within the three groups of a single rotation, differences among the Y–C, Y–I, or N treatments could not be attributed to serial position or to the "intrinsic" recall value of particular figures. For the same task, which was administered to the subjects in one of the groups in a rotation as a Y–I task, was administered to those in another group as a Y–C, and to those in the third group as an N. Or put

otherwise, the factors of serial position and recall value would be distributed equally among the Y–I, Y–C, and N treatments.

Certain departures from this theoretical scheme were required by the following additional experimental requirements:

a. The first puzzle in the series should be a Y–C task, since an initial "no" vote might suggest to the subjects that their fellow members were rejecting the experiment, and an initial Y–I treatment, in which the experimenter interrupted the task, might cast doubt on his intention to respect the group's decision.

b. No two Y–I tasks should succeed each other without the interposition of a Y–C task in order to avoid any suggestion that the experimenter intended consistently to deny the subjects' decision to complete a task.

c. No contiguous tasks in the series should receive the same treatment.

The rotation scheme modified to suit these requirements is presented in *Table I*, where it will be observed that beginning with the seventh task it

TABLE I *ORDER OF PRESENTATION AND EXPERIMENTAL TREATMENT OF TASKS AMONG THE THREE GROUPS IN A SINGLE ROTATION*

Order of Presenting Task	*Group 1*		*Group 2*		*Group 3*	
	Name of Task	*Treatment*	*Name of Task*	*Treatment*	*Name of Task*	*Treatment*
Demonstration	Elephant	Dem.	Elephant	Dem.	Elephant	Dem.
Demonstration	Rabbit	Dem.	Rabbit	Dem.	Rabbit	Dem.
1	Auto	Y-C	Shoe	Y-C	Hand	Y-C
2	Shoe	N	Auto	Y-I	Shoe	Y-I
3	Hand	Y-I	Hand	N	Auto	N
4	Duck	Y-C	Boy	Y-C	Boat	Y-C
5	Boy	N	Boat	N	Boy	Y-I
6	Boat	Y-I	Duck	Y-I	Duck	N
7	Camera	N	Camera	Y-C	Camera	Y-I
8	Bee	Y-I	Bee	N	Bee	Y-C
9	Telephone	Y-C	Telephone	Y-I	Telephone	N
10	Airplane	N	Airplane	Y-C	Airplane	Y-I
11	Bell	Y-C	Bell	Y-I	Bell	N
12	Profile	Y-I	Profile	N	Profile	Y-C
13	Chair	N	Chair	Y-C	Chair	Y-I
14	Teapot	Y-I	Teapot	N	Teapot	Y-C
15	Lamp	Y-C	Lamp	Y-I	Lamp	N

was possible to follow the theoretical scheme faithfully. For the other tasks, we were able to follow the theoretical scheme in the alternate assignment of Y–I, Y–C, and N treatments. Modifications were made only in the order of presenting puzzles. These shifts in order of presentation were never more than two places from the theoretically desirable serial position. In four

instances Y–C tasks were presented earlier in the series, and in one instance an N task was moved forward. If these shifts improved the likelihood of recalling these tasks, it should be noted in view of the hypothesis tested in the next section, that in no case did the change operate to improve the likelihood of recalling Y–I tasks.

In summary, each subject was exposed to fifteen tasks; five tasks to each of the three treatments Y–I, Y–C, and N. The ratio of tasks recalled within a given treatment to total tasks within that treatment was computed for each subject. The means of these recall ratios were computed for the fifteen subjects belonging to the three groups within a complete rotation. This yielded three scores representing strength of recall of Y–I, Y–C, and N tasks, respectively. Since eighteen groups were employed, we have a total of six rotations or, in effect, six replications of the experiment.

THEORY AND RESULTS

The Psychological Situation of the Group Member

The group goal for these competing teams can be characterized as "getting as many points as possible". This goal can be represented in a social space as a consummatory activity toward which the group is locomoting. If the group votes "yes", the path along which the group is acting may be represented as one in which the activity, "completing the task", is connected with the goal. If the group votes "no", the activity of "completing the task" is connected with a region of negative valence, namely, "losing points".

One can deal with these group activities entirely within a social space without reference to the life space of any individual member. Nevertheless, to the extent that the instructions and recruiting procedures of the present experiment were effective, we can say that each subject had a personal goal of seeing the group obtain the best possible score. Within the individual's life space this goal can be represented as a state region [4] which can be designated, "condition where the group has gained points". Whether or not the person finds himself "carried" into this region of his life space depends in the present situation on events in the group or social space.

At the time of voting whether or not to complete the puzzle, the psychological situation of members who vote "yes" can be represented as in *Fig. 2a*. This representation indicates that the person believes that he can locomote through activity region C, "working on the task with others", into the state region D, "condition where the group has completed the task". In view of the member's belief about the consequences of completing the task, region D is included in the region of positive valence, D^1, "condition where the group has gained points". The shaded region inside the person, t^0 (tension for

4. We follow Lewin here as opposed to Leeper (14) in coordinating states as well as activities to regions in the life space.

completion), indicates the existence of a tension system corresponding to the person's desire to see the task completed. If the person enters the region of task-completion, D, the tension system, t^c, should be reduced.

FIG. 2a

THE PSYCHOLOGICAL SITUATION OF THE MEMBER IN CASE OF A "YES" VOTE.

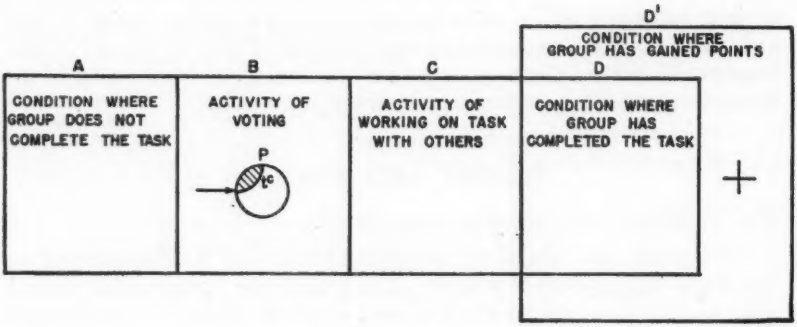


FIG 2b

THE PSYCHOLOGICAL SITUATION OF THE MEMBER IN CASE OF A "NO" VOTE

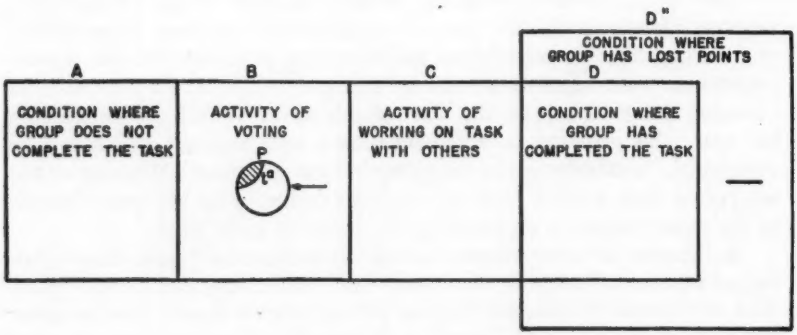


Fig. 2b represents the situation of members who vote "no". Here the person believes that entering region D will entail a loss of points. Therefore region D is included in a region of negative valence. The tension system, t^a (tension for avoidance), corresponds to the individual's desire to avoid completing the task. We hypothesize that tensions for avoidance are reduced where the person locomotes into a position which removes the possibility

of his entering the region of negative valence. In the situation of the present experiment the direction of locomotion is irreversible after the first step along the path, and t^a should be reduced upon P entering region A, "condition where the group does not complete the task".

The concept of a state region has been used in these representations to deal with the fact that if a group attains its goal, or in any other way changes its position within its social space, this event will produce a change in the member's position within his own space. Even though the member has been passive, and has taken no active part in the group reaching its goal, he will have been "carried" by the group action into a new condition or state. State regions are distinguished from activity regions in that locomotion into or through the former depend, at least in part, on the person being transported by some outside agent. In all other respects we assume that they have the same properties as activity regions: (a) A state region can be connected along a path either with an activity region or another state region. (b) State regions may have positive or negative valence.[5] (c) Tension systems in the person can be coordinated to state regions which have positive or negative valence. Since in the present experiment individual locomotion into or away from state regions depends upon group locomotion, this last assumption enables us to link individual tension systems with group goals and group avoidances.

Tension Systems for Group Goals and Avoidances

An individual may disagree with the group's decision to complete or to avoid a given task. For simplicity, however, we make the working assumption—which will be evaluated below—that following the announcement of the group decision members will tend to agree with the group about the desirability or undesirability of completing the task.

On this assumption, if the group sets a goal of task-completion, the corresponding state region of the member will tend to have a positive valence. The member will thus have a tension system for completion which:

a. will be reduced if the member is transported into the state region "condition where the group has completed the task" (which results where the group completes the task, experimental treatment Y–C).

b. will remain in a state of tension if the member is not transported into this desired state region (which results if the group is interrupted short of its goal, treatment Y–I).

If the announced group decision is "no", we assume that in the subject's life space the region, "condition where the group has completed the task",

5. In certain circumstances a state region may, for example, have positive valence but no action by the person can influence the external event upon which his entrance into this region depends, e.g., the situation of a radio listener rooting for a football team. In the present experiment subjects believed their own activities could to some extent promote those external events in the group space which would transport them into or away from state regions.

tends to have a negative valence, and that the member has an avoidance tension system which:

a. will be reduced if the member is transported into the state region "condition where the group has not completed the task" (which results where the group halts work, treatment N, and there is no longer any possibility of the individual's being transported into the region of negative valence).

b. will remain in a state of tension if the member remains in a position from which it is possible that he will be transported into the region of negative valence (which might result if the group were told that they would return to tasks on which they had voted "no").[6]

These hypotheses assert that tensions are reduced for tasks in the Y–C and N treatments and that tensions are not reduced in the Y–I treatment.

TABLE II *PERCENTAGE OF TASKS UNDER THREE DIFFERENT EXPERIMENTAL TREATMENTS*

Rotation	*Treatment*								
	Y–C			Y–I			N		
	Total Tasks	*No Recalled*	*X*(%)	*Total Tasks*	*No Recalled*	*X*(%)	*Total Tasks*	*No Recalled*	*X*(%)
1	75	35	·467	75	40	·533	75	31	·413
2	70	31	·443	70	35	·500	70	36	·514
3	75	33	·440	75	42	·560	75	35	·467
4	70	35	·500	70	41	·586	70	29	·414
5	75	32	·427	75	42	·560	75	38	·507
6	75	29	·387	65	40	·615	70	31	·443
		$\bar{X}$ =	·444		$\bar{X}$ =	·559		$\bar{X}$ =	·460

Assuming that the level of recall of tasks within a treatment is directly related to tension level it follows that:

Hyp. 1. % recall Y–I > % recall Y–C = % recall N

Table II gives the data on recall of tasks for the three treatments, Y–I, Y–C, N, respectively.[7] The mean percentages of tasks recalled by the subjects in each of the six rotations are ·559 for treatment Y–I, ·444 for treatment

6. No direct test was attempted for the hypothesis that avoidance tensions would remain unreduced if the group were told they would return to N tasks. It was feared that if the group were made to act against its expressed decision to halt work, the members would become skeptical of the genuineness of their power to make decisions. However we show below that avoidance tensions remain unreduced where individuals desire to avoid a task but are moved toward task-completion by the action of the group.

7. Each of the fourteen or fifteen individuals within a single rotation was exposed to five tasks per treatment. Thus the percentages of tasks recalled of the total of tasks administered are based on either 70 or 75 tasks within each treatment in a rotation. (Due to an error while working with one of the groups in rotation 6, five too many tasks were administered under treatment Y–C and five too few under treatment Y–I.) These percentages are interpreted as scores representing strength of recall of tasks under each treatment.

Y–C, and ·460 for treatment N. By analysis of variance into three components the influence of treatments on strength of recall is found to be highly significant ($P < \cdot 01$). By t-tests we find that the mean recall score for Y–I tasks is significantly greater than either the mean recall scores for Y–C tasks ($P < \cdot 01$) or for N tasks ($P < \cdot 01$).On the other hand, there is no statistically significant difference between the mean recall scores for Y–C and N tasks ($P = \cdot 59$). These results confirm the hypothesized relationships expressed in *Hyp. 1*, above.[8]

Effects of the Interaction of Individual and Group Decisions on Tension Systems for Group Goals

We made the working assumption above that members will tend to agree with the announced group decision. It is to be expected in some instances at least that members whose votes were opposed to announced results of the group voting would adhere to their original points of view. In this section we shall derive certain theoretical consequences of such disagreements and attempt to determine whether they contribute to some of the variability in the results described above.

Where a member's original vote is "yes", we designate this vote in combination with each of the three experimental treatments as y Y–C, y Y–I, and y N, respectively. Individual and group decisions are in agreement for the situations y Y–C and y Y–I, and we should expect as above that completion of the task will reduce tension systems for y Y–C tasks, that interruption of the task will leave the tension unreduced for y Y–I tasks. In situation y N, individual and group votes are in disagreement. If the person persists in holding to his own "yes" vote, his tension system for completion will remain unreduced where the group votes "no" and halts work. If, however, the individual "changes his mind", and accepts the judgment expressed by the group, then the avoidance tension which is aroused should be reduced by the group halting work. On the assumption that sometimes individuals will change their minds and sometimes will not, tensions will sometimes be reduced in the y N situation and will sometimes remain unreduced. The level of recall of y N tasks should therefore be somewhere between recall of y Y–I tasks (where tension is not reduced) and recall of y Y–C tasks (where tension is reduced). This may be formulated in the following hypothesis:

Hyp. 2. % recall y Y–I > % recall y N > % recall y Y–C.

8. It should be noted that use of analysis of variance in testing statements of the form of *Hyp. 1* systematically underestimates the level of confidence with which we can reject the null hypothesis. For we are not merely asking whether the experimental treatments make a difference in level of recall, but in addition are testing the hypothesis that recall Y–I will be greater than recall Y–C or recall N, and that there will be no difference between recall Y–C and recall N. The probability that these particular differences will occur by chance is obviously less than the probability that *any* type of difference will occur by chance. The t-tests which are used to test the hypothesized relationships between pairs of terms in *Hyp. 1* employ the remainder variance obtained in the analysis of variance in estimating the standard deviations of differences between means (26).

The percentages of tasks recalled are ·560 for y Y–I tasks, ·477 for y N tasks, and ·412 for y Y–C tasks (*Table III*), analysis of variance indicat-

TABLE III *PERCENTAGES OF TASKS RECALLED UNDER SITUATIONS y Y-I, y N, AND y Y-C, BASED ON POOLED DATA FOR ALL INDIVIDUALS WITHIN EACH OF SIX ROTATIONS*

Rotations	*Treatments*								
	y Y–I			y N			y Y–C		
	Total Tasks	*No Recalled*	*X*(%)	*Total Tasks*	*No Recalled*	*X*(%)	*Total Tasks*	*No Recalled*	*X*(%)
1	53	27	·509	43	22	·512	48	18	·375
2	53	28	·528	44	21	·477	56	25	·446
3	55	32	·582	55	29	·527	54	22	·407
4	48	27	·562	48	19	·396	55	25	·454
5	63	36	·571	52	26	·500	54	23	·426
6	51	31	·608	56	25	·446	58	21	·362
Mean			·560			·476			·412

ing that the influence of these situations upon recall is highly significant ($P < ·001$). Testing pairs of means by the t-test, it is found that recall of y Y–I tasks exceeds the recall of both y N tasks ($P < ·01$) and y Y–C tasks ($P < ·001$). Recall of y N tasks, moreover, is greater than recall of y Y–C tasks ($P < ·02$). The results confirm the relationships expressed in *Hyp. 2*.

Turning now to the situation where the person's original vote is "no", the three possible situations are designated n Y–C, n Y–I, and n N. In situation n N individual and group decisions are in agreement, and the avoidance tension coordinated to a "no" vote should be reduced by the group stopping work. In situation n Y–C, if the individual persists in his personal vote of "no", the avoidance tension will not be reduced. For the task is completed by the group, and the individual is transported into the region he desires to avoid. If, on the other hand, this member accepts the group vote of "yes", the resulting tension system for completion will be reduced upon the group completing the task. Since, however, tension should not be reduced where the person rejects the group decision, the recall of tasks in situation n Y–C should be greater than recall of tasks in situation n N. In situation n Y–I, it is to be expected that tension systems will remain unreduced whether the person accepts or rejects the group vote. If the person adheres to his "no" vote, his avoidance tension will not be reduced because treatment Y–I implies that it is still possible that the group will complete the task, transporting him into the region of negative valence. If the person

accepts the group vote of "yes", interruption on the task prevents reduction of the tension for completion. With tensions remaining unreduced in both cases, recall of n Y–I tasks should exceed recall in either of the other two situations. Expressed in summary form:

Hyp. 3. % recall n Y–I > % recall n Y–C > % recall n N.

Percentages of recall are ·547 for n Y–I tasks, ·525 for n Y–C tasks, and ·427 for n N tasks (*Table IV*). The results are in the predicted rank order,

TABLE IV *PERCENTAGES OF TASKS RECALLED UNDER SITUATIONS n Y–I, n Y–C, AND n N BASED ON POOLED DATA FOR ALL INDIVIDUALS WITHIN EACH OF SIX ROTATIONS*

Rotations	*Treatments*								
	n Y–I			n Y–C			n N		
	Total Tasks	*No Recalled*	*X*(%)	*Total Tasks*	*No Recalled*	*X*(%)	*Total Tasks*	*No Recalled*	*X*(%)
1	22	13	·591	27	17	·630	32	9	·281
2	17	7	·412	14	6	·428	26	15	·577
3	20	10	·500	21	11	·524	20	6	·300
4	22	14	·636	15	10	·667	22	10	·454
5	12	6	·500	21	9	·428	23	12	·522
6	14	9	·643	17	8	·470	14	6	·428
Mean			·547			·524			·427

although analysis of variance applied to these data does not permit us to reject the null hypothesis ($P \cong \cdot 20$). Despite this the t-test can be legitimately applied to differences between pairs of mean scores, since these differences have been theoretically predicted. By this method it is found that the recall of n Y–I tasks is not significantly greater than recall of n Y–C tasks ($P < \cdot 40$), but is significantly greater than recall of n N tasks ($P < \cdot 05$). The recall of n Y–C tasks is found to be greater than recall of n N tasks by an amount which approaches significance ($P < \cdot 10$). The data give partial confirmation of the relationships involved in *Hyp. 3*, but the recall of n Y–C tasks is unexpectedly high, approaching within two percentage points the level of recall for n Y–I tasks.[9]

9. The failure to confirm *Hyp. 3* in its entirety may be due in part of the relatively high variability of recall scores associated with individual "no" votes. Comparing the estimated variances of recall scores on tasks which received individual "no" votes and on tasks receiving individual "yes" votes, we obtain:

$$F = \frac{\sigma^2 \text{n vote}}{\sigma^2 \text{y vote}} = \frac{\cdot 0128}{\cdot 0021} = 6 \cdot 095 \ (P < \cdot 01).$$

The low frequency of individual "no" votes may contribute in part to this lack of stability. The present experimental instructions were designed to insure an adequate number of "yes" votes and resulted in relatively few "no" votes, only 21·6 per cent of the total votes cast. In future research, the instructions could be modified to encourage individuals to vote "no" with greater frequency.

We will present here an interpretation of the relatively high level of recall of n Y–C tasks, which it will be possible to test by additional data in the experiment. Both n Y–C and y N tasks as we have noted are characterized by disagreement between personal and group decisions; in both, our theory requires that tensions should be reduced if the person accepts the group vote which disagrees with his own; and in both, tensions should not be reduced if the person rejects the group vote.

An analysis of situation y N is presented in *Fig. 3a*. At the time 1, when the person casts his original vote, a tension system for task-completion exists, and a force is acting on the person in the direction of the positively valent region, "condition where the group has completed the task". At time 2, the group has voted "no" and has halted work. This is conceptually equivalent to introducing an impassable barrier in the individual's life space, which blocks locomotion toward this goal. The significant feature of this situation for our purposes is that the person has not been moved closer to the goal as a result of the group action. There should therefore be no increase of the force acting on him by virtue of the goal-gradient effect (21). Indeed, we may regard the person as having been moved by the group to a greater psychological distance from the goal, in which case the force toward the goal will be decreased.

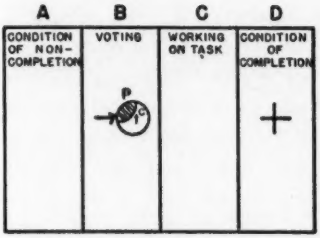
In situation Y–C there is a marked difference. Here the person wishes to avoid completing the task, but he is not merely blocked by the group action, he is coerced into working on the task "against his will". The conceptual analysis is presented in *Fig. 3b*. At time 1, when the member casts his original "no" vote, there is a tension-system for task-avoidance. A force is acting on the person in the direction away from the region "condition where the group has completed the task", which is now represented as having a negative valence. The effect of the group's completing the task at time 2 is to transport the person into this region of avoidance, after which he is blocked from leaving it by an impassable barrier (since in the present experiment the completed task cannot be undone). The feature of the situation we wish to stress here is that the person has been moved closer to—in fact inside —the region of avoidance. By the goal gradient hypothesis, the magnitude of an avoidant force increases steeply as the person approaches a region of avoidance. In consequence, the force *away* from region D should be greater in situation n Y–C (*Fig. 3b*) than the force toward region D in situation y N (*Fig. 3a*).

Lewin (15) presents evidence that where the person is in an "equilibrium" situation, i.e., an impassable barrier, there will be a rise in tension-level. The amount of this rise is hypothesized to be directly related to the magnitude of the force acting on the person to locomote against the barrier. It follows that if an individual rejects a group decision which conflicts with his own decision, there will be a greater rise in tension where the individual has voted "no", situation n Y–C, than where the individual has voted "yes", situation

FIG. 3a

THE PSYCHOLOGICAL SITUATION OF THE MEMBER WHO VOTES "YES" AND REJECTS THE GROUP VOTE OF "NO" (SITUATION yN)*

TIME 1. AT TIME OF MEMBER'S VOTE



TIME 2. AFTER THE GROUP'S LOCOMOTION

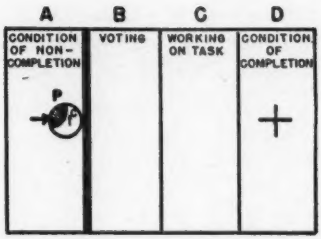
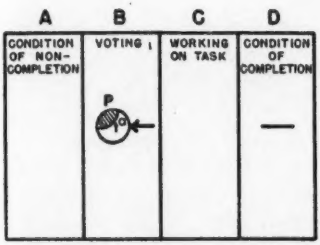


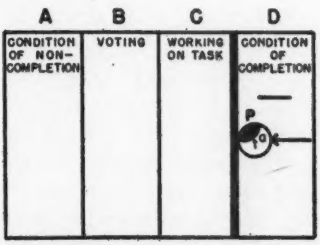
FIG. 3b

THE PSYCHOLOGICAL SITUATION OF THE MEMBER WHO VOTES "NO" AND REJECTS THE GROUP VOTE OF "YES" (SITUATION nY-C)*

TIME 1. AT TIME OF MEMBER'S VOTE



TIME 2. AFTER THE GROUP'S LOCOMOTION



THESE REPRESENTATIONS ARE BASED ON FIGURES 2a AND 2b; REGIONS D' AND D'' ARE OMITTED FOR ECONOMY OF PRESENTATION.

y N. Such a rise in tension would account for the relatively high level of recall in situation n Y–C. In the next section, we present findings on the effects of member attitudes toward disagreements between individual and group decisions which will enable us to test the hypothesis that an attitude of non-acceptance toward a contrary group vote produces greater tension

where the person votes "no" (situation n Y–C) than where the person votes "yes" (situation y N).

Effects of Member Attitudes toward Disagreement between Individual and Group Decisions on Tension Systems for Group Goals

After the recall phase of the experiment open-ended questionnaires were administered to determine whether different subjects had perceived the experimental situation in similar ways. Considerable uniformity appeared among responses to questions dealing with such matters as feelings of success or failure, views about the reasons for interruption of tasks, and desire to do well on the test. A variety of responses resulted, however, from the questions:

"a. In general, how did you feel when you voted 'no' and the group voted 'yes'?"

"b. In general, how did you feel when you voted 'yes' and the group voted 'no'?"

Some indicated that they consistently accepted or rejected group decisions different from their own. Others responded differentially according to whether the contrary group decision was "no" or "yes". Thus some individuals, who tended to stress the value of being cautious, indicated that they resolved disagreements between their own and the group's votes by adopting a "no" position. Individuals who stressed the value of being venturesome resolved disagreements by adopting a "yes" position. The result was that some individuals whose votes differed from the group's accepted group votes of "no" and rejected group votes of "yes", while some accepted group votes of "yes" and rejected group votes of "no".

The attitudes expressed toward group decisions which differed from their own were coded under four categories:

a. *Accept group decision*: subject explicitly adopts the contrary group decision, disavowing his own, e.g., "The group knew best," "I reconsidered and thought I was wrong," "I guess I really wanted to do it anyway."

b. *Acquiesce in group decision*: subject does not explicitly adopt the group decision, but explicitly states his willingness to comply with the group action, e.g., "I tried my best even though my vote was different," "It was O.K. with me if that's the way they wanted it."

c. *Reject group decision*: subject does not state his willingness to comply with the group decision, and discusses (a) his having disagreed with the group, or (b) his continuing to disagree with the group.

d. *Fear group decision*: subject indicates "anxiety" about complying with the group decision, e.g., "I felt I was a liability to the group," "I didn't know how to contribute to the puzzle, and felt I had to try especially hard."

We assume that persons who *accept* a group decision differing from their own change the valence, whether positive or negative, which they have originally attributed to completing the task. We suggest that having taken

one position and shifted to another, their commitments to the new position in this situation are probably relatively weak, i.e., the valence related to the task is small. Persons who *acquiesce* or *reject*, or who *fear* the contrary group decision are assumed to maintain the original valence of the task. We suggest that in view of their resistance to the group vote the original valences associated with the task are stronger for non-acceptant than for acceptant individuals. Corresponding to the expressed intensity of non-acceptance, moreover, it is likely that the strength of these valences is successively greater for acquiescent, rejective, and fearful individuals, respectively. On these assumptions persons can be ordered in terms of their attitudes along a scale which ranges from relatively weak to relatively strong positive or negative valence of the task. If level of tension is directly related to magnitude of valence this scale should represent, too, relative strengths of tension systems for completion or avoidance. The three situations of disagreement between own and group decisions are y N, n Y–C, and n Y–I. The theoretically expected effects upon tension systems of the four attitudes toward disagreement are discussed, along with the relevant data, for each situation in turn:

a. *Situation y N.* The member votes "yes"; the group votes "no"; the work is halted.

1. If the person *accepts* the group decision he develops a tension system for avoidance. The outcome—quitting work on the puzzle—reduces this tension system.

2. If the person *acquiesces* in the group decision he maintains his original tension system for completion. Quitting work constitutes an impassable barrier to this goal, and this equilibrium condition should produce some rise in tension level.

3. If the person *rejects* the group decision his original tension system is maintained. This tension system is initially stronger than in the case of acquiescence. Like acquiescent persons, the rejective individual is in a condition of equilibrium. But since task-completion has a greater positive valence for the rejective person, the positive driving force acting upon him against the impassable barrier is greater. Rejection should therefore produce a greater rise in tension than acquiescence. Both because of the greater original tension level and the greater expected rise in tension, persons who *reject* the group decision should have stronger tension systems than those who *acquiesce*.[10]

Transforming level of tension into percentage of tasks recalled, the following relationship is obtained:

Hyp. 4. % recall y N_{accept} < % recall y $N_{acquiesce}$ < % recall y N_{reject}.

The data of *Table V* and *Fig. 4* confirm the predicted rank order. The

10. The attitude of *fear* cannot occur in situation y N, since where the group halts work the person is not required to do anything with respect to which he feels inadequate.

TABLE V *MEAN PERCENT RECALL OF TASKS IN THREE DIFFERENT SITUATIONS OF DISAGREEMENT FOR FOUR ATTITUDES TOWARD DISAGREEMENT*

Situation		*Attitude Toward Group Vote* *			
		Accept	*Acquiesce*	*Reject*	*Fearful*
yN	Mean % Recall for Individuals	·292	·424	·574	
	Number of Individuals	6	36	25	
nY–C	Mean % Recall	·167	·597	·660	·900
	Number of Individuals †	10	32	12	5
nY–I	Mean % Recall	·467	·577	·667	·500
	Number of Individuals	10	25	11	8

*. Note that an individual's attitude toward a group vote of N may be independent of his attitude toward a group vote of Y, and conversely. A person, for example, may accept group N votes and reject group Y votes (see text).

†. The corresponding scores for n Y–C and n Y–I are each based on the same class of subjects—namely, those with the specified attitudes toward group Y votes. Frequently, however, individuals were exposed to one or more n Y–C tasks and not to n Y–I tasks, and vice versa—hence the different frequencies of individuals in the same attitude column.

mean percentages of tasks recalled are ·292 for *acceptant* individuals, ·424 for *acquiescent* individuals, and ·574 for *rejective* individuals. Independently of the predicted rank order, the null hypothesis applied to these means, tested by an analysis of variance weighted for unequal size of groups, can be rejected at a significant level of confidence ($P < ·05$).

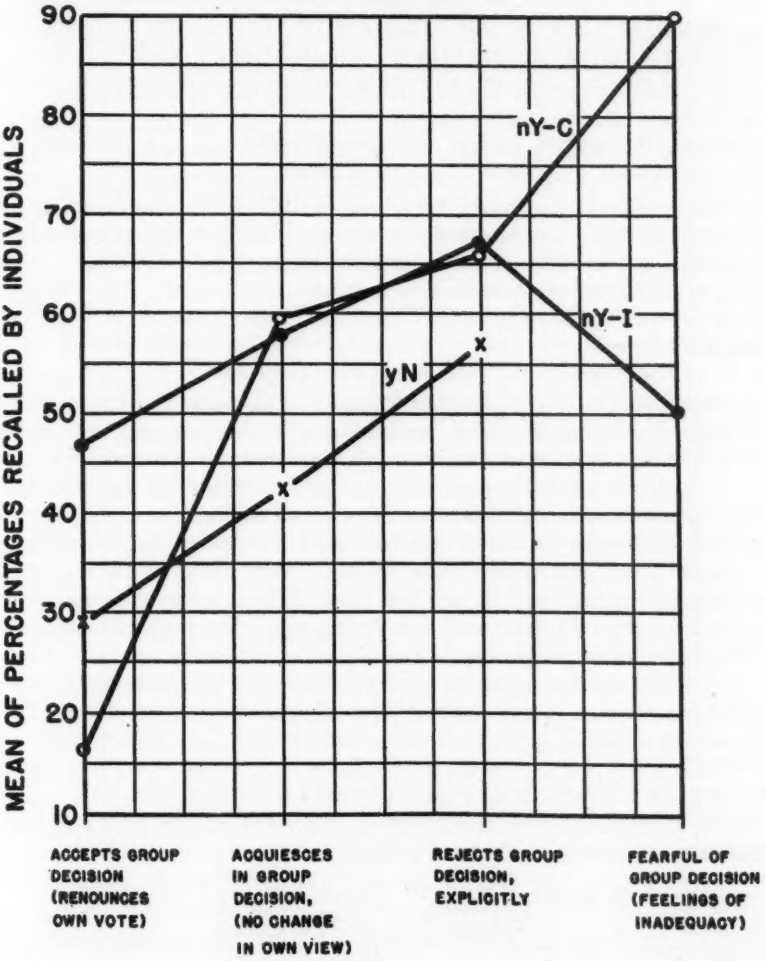
b. *Situation n Y–C.* The person votes "no"; the group votes "yes"; the task is completed.

1. If the person *accepts* the group decision, he develops a tension system coordinated to the group completing the task. The outcome—completing the task—reduces this tension system.

2. If the person *acquiesces* in the group decision, he maintains his original tension system for avoidance. Completion by the group introduces an impassable barrier which blocks avoidant locomotion. A rise in level of tension should follow.

FIG. 4

PERCENT RECALL OF TASKS IN THREE SITUATIONS OF INDIVIDUAL–GROUP DISAGREEMENT AS A FUNCTION OF ATTITUDE TOWARD DISAGREEMENT*



*MAGNITUDE OF VALENCE ASSOCIATED WITH THE TASK IS ASSUMED TO BE SCALED ALONG THE ABSCISSA (SEE TEXT)

3. If the person *rejects* the group decision the initial avoidance tension is assumed to be greater than in acquiescence. Again action by the group introduces an impassable barrier. The rise in tension should be greater here than in acquiescence since the negative driving force away from completion is assumed to be greater.

4. If the person *fears* the group decision the avoidance tension is assumed to be greatest. The negative driving force against the impassable barrier is likewise assumed to be greatest. Accordingly, the level of tension should be at a maximum. Measuring tensions level by recall, we should find:

Hyp. 5. % recall n $Y\text{–}C_{accept}$ < % recall n $Y\text{–}C_{acquiesce}$ < % recall n $Y\text{–}C_{reject}$ < % $recall_{fear}$.

The predicted rank order is confirmed in *Table V*, the mean percentages of recall corresponding to the terms of *Hyp.* 5 being ·167, ·597, ·661, ·900, respectively. The differences among these means are significant at a high level of confidence ($P < ·01$).

c. *Situation n Y–I.* The person votes "no"; the group votes "yes"; the task is interrupted.

1. If the person *accepts* the group decision he develops a tension system coordinated to the group completing the task. Since the task is interrupted, this tension system remains unreduced. However, the tension level for these acceptant individuals is assumed to be relatively low.

2. If the person *acquiesces* in the group decision he maintains his original tension system for avoiding work, which is at a higher level than the tension associated with acceptance. Moreover, the group action prior to the interruption transports the person closer to the region of negative valence, and the person is blocked from quitting the task, since he has been told that work will be resumed. Again, this condition of equilibrium should produce a rise in level of tension.[11]

3. If the person *rejects* the group decision, the level of tension should be greater than in acquiescence (for the same reasons given in the discussion of n $Y\text{–}C_{reject}$).

4. If the person *fears* the group decision, the level of tension should be greatest (for the same reasons given for n $Y\text{–}C_{fear}$).

The theoretically expected differences in level of tension should produce the following rank order in level of recall:

Hyp. 6. % recall n $Y\text{–}I_{accept}$ < % recall n $Y\text{–}I_{acquiesce}$ < % recall n $Y\text{–}I_{reject}$ < % recall n $Y\text{–}I_{fear}$.

11. We cannot state with any assurance that S's will perceive themselves as being at different psychological distances from the region of negative valence in situations n Y–C or n Y–I. Moreover, there is evidence that the goal gradient is highest just outside the goal or avoidance region. The goal gradient hypothesis is therefore not sufficient to enable us to say whether the force away from completing the task will be greater in situation n Y–C or n Y–I, and no predictions can be made about the comparative levels of recall by persons who do not accept the group vote in these two situations.

The rank order of the first three terms in *Hyp. 6* is predicted correctly (*Table V*). However, the level of recall for n Y–I_{fear} is lower than predicted. A possible explanation for this discrepancy will be suggested below in terms of the partial reduction of avoidance tensions corresponding to feelings of relief in fearful persons which appear to occur when completion of the task is postponed.

The results reported above provide strong evidence that the four attitudes toward disagreement which have been identified in this section have significant and predictable effects on tension systems related to group goals. Holding constant attitudes toward disagreement, the data of *Table V* may also be used to compare recall among the different situations. By so doing we can test the hypothesis of the previous section by which we were led into the present inquiry about the effects of attitudes, namely, that an attitude of non-acceptance toward a contrary group vote will produce greater tension where the person's original vote is "no" than where the person's original vote is "yes". The rationale for this hypothesis was that persons who vote "no" will be carried closer to the region of negative valence by treatment Y–C; persons who vote "yes" will simply be blocked by treatment N, but not carried closer to the region of positive valence. The goal gradient effect implies that the magnitude of force acting on the person will be greater in the former situation. And the "equilibrium" hypothesis then implies that the rise in tension level should be greater where individuals have voted "no" than where they have voted "yes".

"Yes" voters having attitudes of non-acceptance are included in the groups y $N_{acquiesce}$ and y N_{reject}. "No" voters with corresponding attitudes are found in the groups n Y–$C_{acquiesce}$ and n Y–C_{reject}. According to the hypothesis being tested, tension level, and therefore recall of tasks, should be greater in situation n Y–$C_{acquiesce}$ (·597) than in situation y $N_{acquiesce}$ (·424) and greater in situation n Y–C_{reject} (·660) than in situation y N_{reject} (·574). Analysis of variance applied to the obtained results indicates that significantly higher recall exists for the "no" voters than for the "yes" voters ($P < ·01$). It will be noticed, on the other hand, that recall for n Y–C_{accept} (·167) does not exceed recall for y N_{accept} (·292). This lends support to the interpretation suggested in the previous section that the relatively high overall recall of n Y–C tasks (·524, *Table IV*) as compared with overall recall of y N tasks (·476, *Table III*) is due to the differential effects on level of tension of attitudes of non-acceptance in these two situations.

Further comparison of recall among situation y N, n Y–C, and n Y–I for individuals having the same attitudes toward disagreement provides results which are consistent with the theory of this section, and raises in addition some interesting problems.

a. For acceptant individuals, recall of n Y–I_{accept} (·467). This accords with the hypothesis stated above that tension will not be reduced in n Y–I_{accept} but will be reduced in n Y–C_{accept}.

b. The data for acceptant individuals raises the problem of accounting for the low levels of recall in the two situations where tension is theoretically reduced, namely, y N_{accept} (·292) and n Y–C_{accept} (·169). For tension is theoretically reduced, irrespective of the person's attitude toward disagreement, in situation y Y–C, as well, and recall in this situation is considerably higher (·412, *Table III*). We have assumed that acceptant individuals, who have changed their points of view, have weak tension systems in relation to the tasks. No research exists on the effects on recall of reducing strong vs. weak tension systems. We suggest the hypothesis that level of recall following tension-reduction is a direct function of the magnitude of the tension system which has been reduced. Recall should therefore be low for acceptant individuals who are assumed to have weak tension systems. That it is justifiable to assume tension systems are weak for acceptant individuals is supported by the evidence of low recall for n Y–I_{accept}. Here the tension system corresponding to the accepted group vote should not be reduced. Neither should tension be reduced for y Y–I tasks, in which there are no complicating effects of individual-group disagreement. However, recall for n Y–I_{accept} (·467) appears to be lower than recall for y Y–I (·560, *Table III*).

c. The recall scores for each pair of situations, n Y–$C_{acquiesce}$ (·597), n Y–$I_{acquiesce}$ (·577), and n Y–C_{reject} (·661), n Y–I_{reject} (·667) are remarkably similar. These data suggest that the fact of being forced into a condition of completing the task against one's will (n Y–C) does not create a greater rise in tension than the condition of being forced to go part way toward completion (n Y–I). The magnitudes of the force opposed to task-completion must, therefore, on the present theory, be assumed to be the same whether one is temporarily interrupted short of the region of negative valence, or one actually enters this region. That is, we have no evidence in this experiment of differences along the goal-gradient between the situations of interruption or completion.

d. An interpretation of the discrepancy in recall between n Y–C_{fear} (·900) and n Y–I_{fear} (·500) may be proposed based on qualitative observations of subjects during the experiment. Where the task was interrupted (i.e., postponed temporarily) persons who appeared to be concerned about their inability to contribute to the task gave indications of feelings of relief. They seemed to regard the interruption as providing a respite or "breathing spell". These relief-reactions may be coordinated to a discharge of the avoidance tension, comparable to the discharge which occurs in goal tensions where the person is able to turn to another activity which has substitute value (7). It seems obvious that substitution processes applying to avoidance tensions will have different properties from those which have been studied for goal tensions. Unless the threat of being "carried" into the region of negative valence is removed, it is probable that complete reduction of avoidance tension cannot be obtained, and that any partial reduction will be more or

less temporary.[12] The hypothesis is suggested that where individuals are being transported toward a region of negative valence, temporary interruption will have partial substitute value.

Up to this point, we have examined a number of the ways by which motivational processes in the individual can be affected by group goal-setting and locomotion. The focus of treatment throughout has been in terms of goals or avoidances which members hold in relation to the group's completing or not completing a task.

In addition, it seems likely that group members would have another goal in this situation, namely, voting in such a way that they would be generally in agreement with their fellow members. The studies by Festinger *et al.* (8) indicate that groups induce pressures on members to conform to standards and ways of behaving which are relevant to group functioning, and that deviants from these standards tend to be rejected by the group. Sherif's (24) work suggests that particularly where the grounds for individual judgment are vague or ambiguous, individuals will desire that their judgments be reinforced by "social reality".

The judgments which members were obliged to make in this situation were both relevant to the group's functioning and based on relatively vague criteria. We would therefore expect that, concurrently with goals related to the task, members would desire that their own decisions be in more or less general agreement with the group decisions. Members could tell on the basis of the announced group vote whether or not they were agreeing with the group. If the member found himself agreeing often enough, i.e., if the goal of being in agreement were reached, tension systems coordinated to this goal should be reduced. With "agreement" tensions reduced, one would expect no effects of these tension systems on "task" tensions. If the member finds himself in frequent disagreement with the group, however, the tension system corresponding to a desire for agreement should not be reduced. How does this affect tension systems for the group task? In the next section we present findings which indicate that tension systems for agreement have greater potency in this situation in the sense that where they are unsatisfied they supplant tension systems for the task.

Effects of Frequency of Individual and Group Disagreement on Tension Systems for Group Goals

Each subject voted fifteen separate times, and found in the course of the experiment that group votes differed from own votes with greater or lesser frequency. Subjects were exposed to the announcement of five groups "no" votes and ten groups "yes" votes. One would expect that persons who more frequently voted "no" would more frequently find themselves in opposition

12. The phenomenon of catharsis—as it occurs where in a given situation threat of punishment is removed for expression which is usually unacceptable (2)—may involve some such temporary reduction of avoidance tension.

to the group. Paradoxically, however, a large number of disagreements with the group vote could arise because of the person's desire to agree with the group. If, for example, the announced group vote was "no" on a given puzzle, and the subject then voted "no" on the next puzzle, anticipating that the group would repeat its vote, the subject's own vote would necessarily be in agreement, since the subsequent announcement was always "yes". We were, in fact, able to find no clear-cut relationship between a person's tendency to vote "yes" or "no" and the frequency with which group votes differed from own votes. We can conclude that, in general, subjects had little control over the frequency of their disagreements.

As the number of their disagreements with the group became greater, however, several subjects could be observed to be losing their interest in the group tasks. They appeared instead to become concerned with whether the group votes were turning out the same as their own. After casting their votes they would appear to await the announcement of the group vote with great expectancy. If the group vote agreed with their own, they would give evidences of feelings of satisfaction; if it turned out differently they would show disappointment. There was, in fact, considerable spontaneous expression on this point in the post-experimental questionnaire from subjects who felt the group vote had differed from their own too frequently. They expressed a variety of doubts and misgivings about themselves: "What's wrong with me?"; "Am I a bad group member?" "Am I too different from the others?", etc.

Most subjects found the announced group vote differed from their own votes from five to eight times over the fifteen tasks. In examining the recall of tasks in relation to the number of such disagreements, it was noticed that with very frequent disagreements: (a) recall appeared to diminish in certain cases where theoretically we would expect the presence of unreduced tension systems; (b) recall appeared to increase for tasks on which own and group vote were in agreement. Such results seemed to have a *prima facie* reasonableness in terms of the qualitative observations reported above. For if frequent disagreements with the group vote created a situation where members lost their task-orientation, then there should be no arousal of tension systems for the tasks. If the member in this situation now desired to be in agreement with the group, agreements would be experienced as *rewards*, and it might be expected that rewarded tasks will tend to be better remembered (5).

In order to determine whether effects of this sort were present in the data, tasks were grouped in *Table VI* according to whether they had been worked on by individuals whose own votes had differed from the group vote, 5, 6, 7, or 8 times. For each of the three group treatments comparisons were then made of the percentages of tasks recalled where the individual's vote on the task had been the same as the group's and where the individual's vote had been different. The scores presented in *Table VI* and graphically in *Fig. 5* are the differences between these percentages. Friedman's (10) test is applied to these

TABLE VI *COMPARISON OF PERCENTAGES OF RECALL OF AGREEMENTS VERSUS DISAGREEMENTS IN TREATMENTS Y-C, Y-I, AND N BASED ON POOLED DATA FOR GROUPS OF INDIVIDUALS WITH DIFFERENT NUMBERS OF TOTAL DISAGREEMENTS*

Comparison	*Total No. of Disagreements*			
	5	6	7	8
(% n Y–C)–(% y Y–C) Difference (%)	(44·7–38·0) +6·7	(57·2–37·5) +19·7	(67·0–48·9) +18·1	(44·4–55·9) −11·5
(% n Y–I)–(% y Y–I) Difference (%)	(57·9–56·2) +1·7	(60·0–55·8) +4·2	(59·3–52·0) +7·3	(41·6–57·2) −15·6
(% y N)–(% n N) Difference (%)	(44·6–46·8) −2·2	(49·0–46·6) +2·4	(44·5–36·4) +8·1	(55–66·7) −13·7
(% Total Disagr.)– (% Total Agr.) Total Difference %	49·1–47·0 +2·1	55·4–46·6 +8·8	56·9–45·8 +11·1	46·3–59·9 −13·6

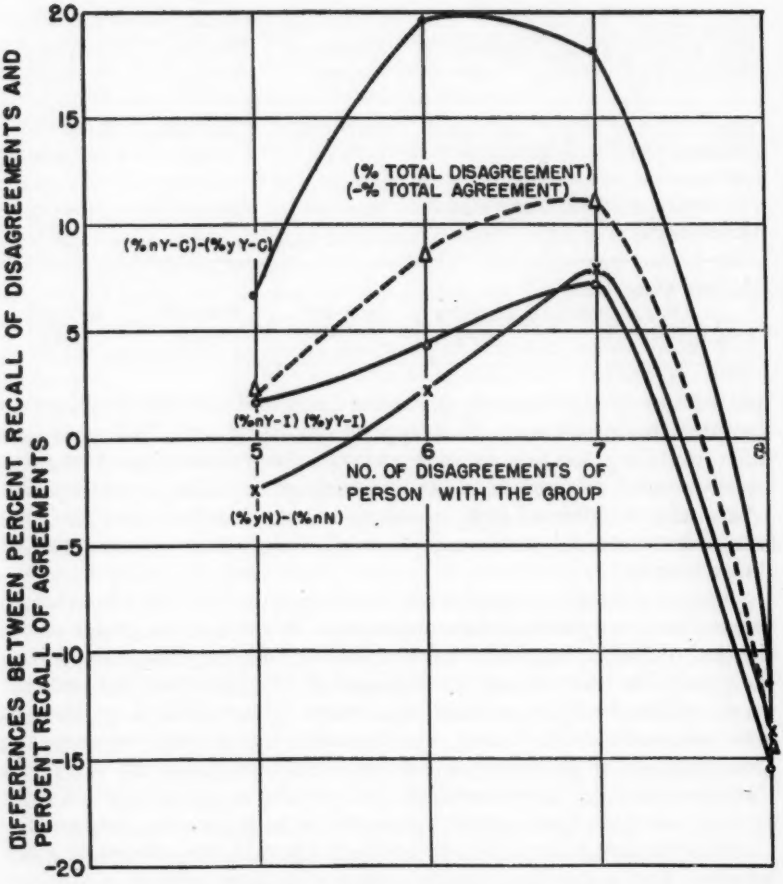
data because of heterogeneity of variance and indicates that frequency of disagreements significantly affects type of recall ($P < \cdot 02$). Where subjects differ from the group five, six, or seven times, disagreements are either about equally recalled or somewhat more frequently recalled than agreements. But where subjects differ on eight occasions, i.e., on over half the total votes cast, a sharp reversal occurs and the recall of agreements exceeds that of disagreements.

It seems plausible to interpret this phenomenon as reflecting a loss of task-orientation by subjects and the replacement of this with a new goal, namely, the goal of finding themselves in the condition of being in agreement with the group. However, to say that this goal of being in agreement with the group will lead subjects to recall agreements raises a difficult problem in terms of tension system theory. Agreement for these subjects represents the attainment of their goal; disagreement represents non-attainment. We would then have to say that subjects with the goal of being in agreement recall more finished tasks (i.e., agreements) than unfinished ones (i.e., disagreements).

A brief statement may be in order about a possible way of resolving this paradox. Within Lewinian theory, tension systems may result in a person attempting to locomote toward a goal, or, if the medium is fluid or more "irreal", some form of restructuring of the situation may occur. On the level of action, interruption of the task leaves the person with tendencies to resume locomotion (22). The Zeigarnik effect, according to Lewin (16), is based on the fact that where thinking is related to action, the person tends to continue to think about the task which is to be resumed, and that this will be reflected

FIG 5

DIFFERENCES BETWEEN PERCENT RECALL OF AGREEMENTS AND DISAGREEMENTS AS A FUNCTION OF TOTAL NUMBER OF DISAGREEMENTS OF PERSON WITH GROUP



in increased recall. However, thinking about unfinished tasks is not functionally related to tension-reduction if the person feels unable to act, but feels obliged to *wish* for a satisfactory outcome. For it is likely that persons operating on a wish-level will obtain a greater measure of tension-reduction by thinking about successes (finished tasks) rather than failures (unfinished tasks).

This should manifest itself in tendencies to recall finished tasks by persons who feel unable actively to locomote to their goals—which is a possible interpretation of findings such as those of Rosenzweig's (23) with handicapped children.

In the present experiment, among those subjects who experienced frequent disagreements with the group, one would expect to find some, at least, who would be doubtful that action on their part could bring them into agreement. If, with frequent disagreements, they become discouraged about their ability to predict the group vote, they can only cast their votes and wait passively, *wishing* that the group vote will turn out the same as their own. The hypothesis that persons who are behaving on a wish-level will tend to recall finished tasks, will then account for the finding that these subjects recall more agreements than disagreements.

To test this interpretation of the results, one could design an experiment in which the only goal of the member is to vote in such a way that he will be in agreement with group vote. Recall of agreements and disagreements could then be compared in situations where the individual believes he can actively locomote toward this goal and where he believes he is unable actively to locomote. Theoretically, recall of agreements should exceed recall of disagreements in the latter case; disagreements should exceed agreements in the former case.[13]

SUMMARY

A method for treating conceptually the relations between individual and group goal-striving has been presented, and a technique for measuring individual motivation in relation to group goals has been described.

The conceptual treatment—within the framework of Lewin's topological and vector constructs—is designed to handle the fact that individuals may find themselves psychologically "carried" toward or away from goals, or toward or away from avoidances by the action of a group. The effects of the group action are represented in the individual's life space as locomotions by the person into or through state regions. Goals or avoidances which the individual holds *for* the group are represented as state regions with positive or negative valences, respectively.

The measurement technique employed is an adaptation of Zeigarnik's method of recall of interrupted tasks to the group situation. An experiment was designed in which a number of individuals worked together on a series of group tasks. Votes were taken on whether or not the individual desired the group to complete each task, and after these votes, work on the tasks was either halted, partly completed, or fully completed. Derivations were made about the consequences of these events in the social field upon individual

13. This experiment has since been performed with positive results (12).

tension systems and upon recall of tasks. The major findings may be indicated as follows:

a. Tension systems can be aroused for goals which the individual holds for the group. If the individual accepts the group goal, tension is reduced where the group completes the task; tension is not reduced where the group activity is interrupted. Just as with tension systems for goals which the person holds for himself these can be measured by the relative recall of finished versus unfinished group tasks.

b. Tension systems can be aroused for avoidances which the individual holds for the group. The hypotheses were confirmed that avoidance tensions will be reduced if the possibility of the individual being "carried" into the region of avoidance is removed, that they will be unreduced if this possibility persists. It was shown that recall of tasks can be used to measure avoidance tensions as well as goal tensions.

c. A member's attitude toward disagreement between own and group decisions will have systematic effects on the arousal and reduction of tension systems. The same person's attitudes toward group decisions which differ from his own may vary according to whether the group decision is to complete a task or to abandon it. Four attitudes affecting tension systems were distinguished, "acceptance", "acquiescence", "rejection", and "fearfulness", the latter arising only in cases where the group decision is to complete a task.

Where an individual votes "yes", to complete a task, the consequence of a contrary group vote is that a barrier is interposed along the individual's path to the goal (frustration). Where the individual votes "no" to avoid a task, the consequence of disagreeing with the group is that the person will be "carried" by the group toward the avoidance (coercion). The theoretical derivations that individuals will develop higher levels of tension in situations of coercion than in situations of frustration were confirmed.

d. Evidence was found for the interpretation that tension systems to be in agreement with other members exist concurrently with tension systems for the group task, and that frequent deviations from the group vote will leave tension for agreement unreduced. This "agreement" tension system tends to supplant "task" tension systems in deviant members.

e. Data were obtained which suggest the following hypotheses about additional properties of tension systems:

Hyp. 1. The level of recall of finished tasks is a direct function of the magnitude of the original tension system coordinated to finishing the task.

Hyp. 2. Given relatively strong avoidance tensions, temporary interruption of the group's "carrying" the individual toward the avoidance, reduces the avoidant tension. That is, substitution processes exist for avoidant tensions as well as for goal tensions.

Hyp. 3. Given a goal or an avoidance, the tendency to recall finished versus unfinished tasks is a function of characteristics of the psychological

situation. Unfinished tasks are recalled if the situation is such that the person feels able to act toward the goal; finished tasks are recalled if the person feels unable to act, but "passively" wishes for the desired outcome.

BIBLIOGRAPHY

1. ADLER, D. L., and KOUNIN, J. S. "Some factors operating at the moment of resumption of interrupted tasks." *J. Psychol.*, 1939, *7*, 255–267.
2. ALLPORT, G. W. "Catharsis and the reduction of prejudice." *J. soc. Issues*, 1945, *1*, No. 3, 3–10.
3. BARNARD, C. I. *The Functions of the Executive*. Cambridge: Harvard University Press, 1938.
4. BAVELAS, A. Unpublished report delivered at Topological Meetings, Cranbrook, Michigan, 1947.
5. BEEBE-CENTER, J. G. *The Psychology of Pleasantness and Unpleasantness*. New York: D. Van Nostrand, 1932.
6. CARTWRIGHT, D. "The effect of interruption, completion, and failure upon the attractiveness of activities." *J. exp. Psychol.*, 1942, *31*, 1–16.
7. ESCALONA, S. "Play and substitute satisfaction." In Barker, R. G., Kounin, J. S., Wright, H. F. (eds.), *Child Behavior and Development*. New York: McGraw-Hill, 1943.
8. FESTINGER, L., *et al. Theory and Experiment in Social Communication*. Ann Arbor: University of Michigan, 1950.
9. FRENCH, J. R. P. "Group productivity." In Guetzkow, H. (ed.), *Groups, Leadership, and Men*. Pittsburgh: Carnegie Press, 1951.
10. FRIEDMAN, M. "Use of ranks to avoid the assumption of normality implicit in the analysis of variance." *J. Amer. statist. Assoc.*, 1937, *32*, 675–701.
11. HOMANS, G. C. *The Human Group*. New York: Harcourt, Brace, 1950.
12. HORWITZ, M., and LEE, F. J. "Effects of decision-making on motivational processes in group members." In preparation. (Abstract, *Amer. Psychologist*, 1952, *7*, No. 7.)
13. KATZ, D. "Morale and motivation in industry." In Dennis, W. (ed.), *Current Trends in Industrial Psychology*. Pittsburgh: Univ. of Pittsburgh, 1949.
14. LEEPER, R. *Lewin's Topological and Vector Psychology*. Eugene, Oregon: Univ. of Oregon, 1943.
15. LEWIN, K. "The conceptual representation and the measurement of psychological forces." *Contr. psychol. Theory*, 1938, *1*, No. 4, Durham. North Carolina: Duke Univ. Press.
16. LEWIN, K. *Field Theory in Social Science*. Cartwright, D. (ed.) Chs. I, X. New York: Harper, 1951, and London, Tavistock Publications, 1952.
17. LEWIN, K. *Principles of Topological Psychology*. New York: McGraw-Hill, 1936.

18. LEWIS, H. B. "An experimental study of the role of the ego in work, I. The role of the ego in cooperative work." *J. exp. Psychol.*, 1944, *34*, 113–127.
19. LEWIS, H. B., and FRANKLIN, M. "An experimental study of the role of the ego in work II. The significance of task orientation in work." *J. exp. Psychol.*, 1944, *34*, 194–215.
20. LIPPITT, R. "An experimental study of authoritarian and democratic group atmospheres." *Studies in Topological and Vector Psychology*, I. Univ. Iowa Stud. Child Welf., 1940, *16*, No. 3.
21. MILLER, N. E. "Experimental studies of conflict." In J. McV. Hunt (ed.), *Personality and the Behavior Disorders*. New York: Ronald, 1944.
22. OVSIANKINA-RICKERS, M. "Die Wiederaufnahme unterbrochener Handlungen." *Psychol. Forsch.*, 1928, *11*, 302–379.
23. ROSENZWEIG, S. "The recall of finished and unfinished tasks as affected by the purpose with which they were performed." *Psychol. Bull.*, *30*, 698 (abstract), 1933.
24. SHERIF, M. *The Psychology of Social Norms*. New York: Harper, 1936.
25. SHERIF, M., and CANTRIL, H. *The Psychology of Ego-involvements*. New York: Wiley, 1947.
26. SNEDEOOR, G. W. *Statistical Methods*. Ames, Iowa: Collegiate Press, Iowa State College, 1937.
27. ZEIGARNIK, B. "Das Behalten erledigter Handlungen." *Psychol. Forsch.*, 1927, *9*, 1–85.

BIOGRAPHICAL NOTE

A note on the author of this paper appeared in *Human Relations*, Vol. VI, No. 4.

CLASS AND COMMITTEES IN A NORWEGIAN ISLAND PARISH[1]

J. A. BARNES

I

When we study the social organization of a simple society, we aim at comprehending all the various ways in which the members of the society systematically interact with one another. For purposes of analysis we treat the political system, the pattern of village life, the system of kinship and affinity, and other similar areas of interaction as parts of the same universe of discourse, as though they were of equal analytical status, and we strive to show how the same external factors, principles of organization, and common values influence these different divisions of social life. This task, though always difficult, has been accomplished for a growing number of simple societies, about which we can feel confident that we have an appreciation of what the society *as a whole* is like. When we turn to the enormously complex societies of Western civilization our task becomes much more difficult. Fieldwork in a Western community can lead directly to knowledge of only a very small sector in the social life of a large-scale society. This limited area of detailed knowledge has then to be related, as best we can, to experience and information derived from other parts of the society.

Recently I had the opportunity of studying a parish in Western Norway called Bremnes.[2] During my fieldwork I did not try to gain first-hand knowledge of Norwegian society as a whole. Any such attempt would, I think, have been entirely unsuccessful. Instead I attempted to isolate for study certain aspects of social life in which I was interested, which were relatively unknown, and relatively easy to grapple with. Many writers have

1. The first draft of this paper was read at a meeting of the Association of Social Anthropologists at Oxford on 3 October 1953. I am very grateful to those who took part in the discussion, and to Professor Ely Devons, for comments and criticism.

2. I carried out this work during 1952–3 as a Simon Research Fellow of the University of Manchester. I am much indebted to the University for its generous support, and also to St. John's College, Cambridge, who elected me to a Fellowship. My work was made possible only by the whole-hearted cooperation of many men and women in Bremnes, for which I am most grateful.

discussed the political history of Norway, the development of its economic institutions, the personality of its inhabitants, their forms of religious belief, and similar topics. Some sociological fieldwork has been carried out in the country, but as yet very little is known about the operation of the social class system in a land which prides itself on its affirmation of social equality. Therefore I decided to concentrate my attention on those kinds of face-to-face relationships through which a class system, if there were one, might operate. I was also interested in the way in which collective action is organized in a society of this kind, and was therefore led to consider the working of committees. I chose to study an island parish partly dependent on industry since I believed that there the field data I sought would be easier both to obtain and to understand than in a town.

Bremnes has a domiciled population of some 4,600. Of every ten men over fifteen years old, three are engaged mainly in fishing, two in agriculture, another two in industry, and one is a merchant seaman. These occupations account for 84 per cent of the adult male population. Another 6 per cent are gainfully employed in other occupations, and the final 10 per cent are retired. The majority of adult women are housewives. These percentages indicate only the principal occupation, for many men divide their time between different ways of earning a living. All farms are small, very few employ paid labour, and few households can live off their land alone. Therefore most peasants spend at least the time from Christmas to Easter fishing for herring, while others work in the local marine-engine factory. A few men are almost full-time administrators, but the bulk of the work of local government is carried out by part-time officials such as the mayor, the parish treasurer, the tax assessors and collectors, and the chairmen of the various standing committees, most of whom have small-holdings as well as their public work to attend to.

Bremnes is part of Norway, and its inhabitants share much of their culture with their fellow countrymen, as well as belonging with them to a single economic, social, and administrative system. Here it is sufficient to mention that Norway is a democratic monarchy with high taxation and comparatively little extremes of poverty and wealth. Over 95 per cent of Norwegians belong to the Lutheran State church. There is no tradition of feudalism, there are no hereditary titles outside the royal family, and virtually all children attend the official elementary schools. An idea strongly stressed in Norwegian thought is that no man should have more privileges than his fellows.

II

Each person in Bremnes belongs to many social groups. In particular he is a member of a household, of a hamlet, of a ward, and he is a member of the parish of Bremnes. At different times and different places membership of

one or other of these groups is definitive for what he does. He goes to the prayer-house with his household, sits at weddings with other members of his hamlet, and pays tax according to his parish. There are other series of groups which to some extent cut across these territorially-based ones, although they may themselves be based on territory. Thus for example a man may belong to a hamlet missionary working-party, or to a bull-owning cooperative based on a ward. In formal terms these various groups fit one inside the other, each in its own series. Thus there are three territorially-defined fishermen's associations in the parish. All three belong to the provincial fishermen's association, and this in its turn forms part of the national association. There may be conflicts because of the duties and rights a person has in the various groups in any one series, and there may be conflicts because of his interests in different series. This is true of all societies.

The territorial arrangement of the Bremnes population is fairly stable. The same fields are cultivated year after year, and new land comes into cultivation only slowly. Houses can be moved from site to site, but this is expensive. Land can be bought and sold, but there are several factors tending to discourage frequent sales of land. Thus for the most part the same people go on living in the same houses and cultivating the same land from year to year. This provides, as it were, a stable environment in which social relations are maintained through the decades, and a frame of reference by which individuals can relate themselves to other people. This territorially-based arrangement of persons is, however, only a part of the social system of Bremnes, for men utilize the sea as well as the land. Herring are not cultivated, they are hunted. They are taken from the sea, where there are no territorially defined rights in property. They are caught by men organized in groups of from five to twenty, whose composition varies from year to year much more than do the household groups who work together on the same holding. The fishing vessel, the temporary home of the fishermen, wears out more quickly than a house or a plot of land, and it can be bought and sold comparatively easily. Even more important, there are no women on board. Wives and children remain behind and stay in one place while the men move from one fishing ground to another, and from one crew to another. Here then we have two distinct kinds of social field, a fluid and a stationary, and we shall presently discuss a third field linking these two. The fluid field is the field of industrial activity, in which men earn money by catching fish; the stable field is the field of domestic, agricultural, and administrative activity ashore, where they, or their wives, spend the money.

The Norwegian fishing industry is efficient; technological change is going on continually, and vessels make use of modern equipment like radio telephones, echo-sounding gear, nylon ropes, radar and asdics. It is a highly competitive industry, each vessel striving against all other vessels. Loyalties to kinsmen, neighbours and friends continue to operate, but only to a limited extent. In their own words, "Herring fishing is war." Any man can try to

get himself included in a crew and each owner seeks to engage the crew that will catch most fish. During the herring season, men from Bremnes sail in vessels belonging to other parishes, and vessels registered in Bremnes sometimes have on board fishermen from as much as six hundred miles away. In effect, there is something like a free labour market. Men apply for a place in a particular vessel because of contacts they have made, friends or relatives who have already served on board, or the success of the vessel in previous seasons.

An industry of this kind could scarcely operate were the pattern of social relations as fixed and stable as it is in the round of social and economic activities ashore. The greater portion of the herring catch is exported and in order to sell on the world market at a profit the size of the fishing fleet and the amount of capital invested in it have to respond to economic pressures which vary in intensity and point of application. There is a huge marketing organization and various reserve funds which even out part of the differences in earnings between one vessel and another and from year to year. Even so, the amounts earned by the fleet as a whole vary considerably over the seasons, and in any year some crews do very well while others barely earn any money at all. Most of the tasks in fishing can be carried out by any able-bodied man brought up by the sea, so that men can move fairly easily from fishing into other occupations and back again. From the point of view of the individual fisherman, therefore, the herring-fishing industry is intersected by a social field through which he can move fairly freely along lines of friendship and local knowledge, seeking in the main the achievement of economic goals. Every man is in touch, or can put himself in touch, with a large number of other men, differentiated into shipowners, skippers, net bosses, cooks and others, and into good and bad, and to whom he is linked in a variety of ways. The herring-fishing industry also generates its own social field which is influenced by ecological factors, such as the disappearance of the fish, by economic factors affecting alternative opportunities for employment and investment, and by many others. It is a social field only partly made up of an arrangement of lasting social groups.

Thus in terms of this analysis we can isolate three regions or fields in the social system of Bremnes. Firstly there is the territorially-based social field, with a large number of enduring administrative units, arranged hierarchially, one within another. The administration of the parish is carried on through this system, and the same boundaries are used by the voluntary associations. By reason of their physical proximity the smaller territorial units, the hamlets and wards, provide the basis for enduring social relations between neighbours, which find expression in various activities connected with subsistence agriculture, the care of children, religion, entertainment, and the like. The units of the system endure and membership changes only slowly.

The second social field is that generated by the industrial system. Here we have a large number of interdependent, yet formally autonomous units

such as fishing vessels, marketing cooperatives, and herring-oil factories, connected with each other functionally rather than hierarchically, yet each organized internally in a hierarchy of command. These units, which often are true social groupings as well as units of organization, do not necessarily persist through time, nor does their membership remain fixed.

The third social field has no units or boundaries; it has no coordinating organization. It is made up of the ties of friendship and acquaintance which everyone growing up in Bremnes society partly inherits and largely builds up for himself. Some of the ties are between kinsmen. A few of them are between people who are not equals, as between a man and a former employer with whom he has kept in contact. Most of the ties are, however, between persons who accord approximately equal status to one another, and it is these ties which, I think, may be said to constitute the class system of Bremnes. The elements of this social field are not fixed, for new ties are continually being formed and old links are broken or put into indefinite cold storage.

Let us examine more closely the distinctive features of this third social field. As we well know, cognatic kinship does not of itself give rise to enduring social groups. I have my cousins and sometimes we all act together; but they have their own cousins who are not mine and so on indefinitely. Each individual generates his own set of cognatic kin and in general the set he and his siblings generate is not the same as that generated by anyone else. Each person is, as it were, in touch with a number of other people, some of whom are directly in touch with each other and some of whom are not. Similarly each person has a number of friends, and these friends have their own friends; some of any one person's friends know each other, others do not. I find it convenient to talk of a social field of this kind as a *network*.[3] The image I have is of a set of points some of which are joined by lines. The points of the image are people, or sometimes groups, and the lines indicate which people interact with each other. We can of course think of the whole of social life as generating a network of this kind. For our present purposes, however, I want to consider, roughly speaking, that part of the total network that is left behind when we remove the groupings and chains of interaction which belong strictly to the territorial and industrial systems. In Bremnes society, what is left is largely, though not exclusively, a network of ties of kinship, friendship, and neighbourhood. This network runs across the whole of society and does not stop at the parish boundary. It links Bremnes folk with their kinsmen and friends in other parishes as well as knitting them together within the parish. A network of this kind has no external boundary,

3. Earlier I used the term *web*, taken from the title of M. Fortes' book, *The web of kinship*. However, it seems that many people think of a web as something like a spider's web, in two dimensions, whereas I am trying to form an image for a multi-dimensional concept. It is merely a generalization of a pictographic convention which genealogists have used for centuries on their pedigree charts. Recent modifications of this convention include the tribal "sequences" in W. E. Armstrong, *Rossel Island* (1928), p. 37; "psychological geography" in J. L. Moreno, *Who shall survive?* (1934), pp. 238–47; and "sets" in E. D. Chapple and C. S. Coon, *Principles of anthropology* (1942), p. 284.

nor has it any clear-cut internal divisions, for each person sees himself at the centre of a collection of friends. Certainly there are clusters of people who are more closely knit together than others, but in general the limits of these clusters are vague. Indeed, one of the ways in which a cluster of people emphasize their exclusiveness is to form a group, to which one definitely either does or does not belong. The social ties linking the members of the group are then no longer merely those of kinship or friendship.

In parenthesis we may note that one of the principal formal differences between simple, primitive, rural or small-scale societies as against modern, civilized, urban or mass societies is that in the former the mesh of the social network is small, in the latter it is large. By mesh I mean simply the distance round a hole in the network. In modern society, I think we may say that in general people do not have as many friends in common as they do in small-scale societies. When two people meet for the first time, it is rare in modern society for them to discover that they have a large number of common friends, and when this does happen it is regarded as something exceptional and memorable. In small-scale societies I think this happens more frequently, and strangers sometimes find that they have kinsmen in common. In terms of our network analogy, in primitive society many of the possible paths leading away from any *A* lead back again to *A* after a few links; in modern society a smaller proportion lead back to *A*. In other words, suppose that *A* interacts with *B* and that *B* interacts with *C*. Then in a primitive society the chances are high that *C* interacts with *A*, in a modern society the chances are small. This fact is of considerable practical importance for the study of societies by the traditional techniques of social anthropology, when we try to become acquainted with a limited number of persons whom we observe interacting one with another in a variety of roles. In a modern society, each individual tends to have a different audience for each of the roles he plays. Bremnes, in these terms, is an intermediate society.

In some societies close kinsmen and affines are not necessarily social equals, and in that case the network of kinship ties may have a steep social gradient. Similarly, in our own society, in a street with property ranging gradually from mansions at one end to tenements at the other, we can speak of a network of ties between neighbours who do not regard themselves as equal in social status. However, in Bremnes, as in many other societies, kinsmen, by and large, are approximate social equals. Furthermore, at the present time, unlike conditions which prevailed in Bremnes until about a hundred years ago, neighbours are approximately equal in social status. In Norwegian thought, the idea of equality is emphasized, so that even between persons of markedly different economic status there is less recognition of social inequality on either side than would, I think, be the case in Britain. Thus the social network in Bremnes is largely a system of ties between pairs of persons who regard each other as approximate social equals.

III

The organization of the population of Norway into social classes, assuming that there is such an organization, may be said to manifest itself in Bremnes in the social network I have described. The term *social class* is widely used in general conversation, and naturally it has a great variety of meanings. I think that much of the confusion that has grown up around the term is due to our failure to distinguish these different usages. Thus Marx had in mind definite groups into which the population was divided, which were mutually exclusive, collectively exhaustive, endured through at least several decades, and which recruited members by reference to their position in the economic system. The study of class through clique membership, on the other hand, is closer to the idea of class as a network. For instance, in *Deep South*[4] a series of overlapping cliques are used to define the boundaries of class. Most other approaches to class treat it as a kind of social category, of people possessing approximately the same size of house, or paid about the same amount, or standing at about the same level on some commonly-held scale of social esteem. Lastly there is class as a category of thought, a unit of division used when members of a society mentally divide up the population into status categories. It is clear that the question "How many classes are there?" is meaningless when applied to class as a social category, for there are as many or as few as we choose; and there is often no consensus within a society about class as a category of thought. There may be disagreement about the number of social classes when class is treated as a social group, in the same way as there are disagreements about how many genera and how many species there are in zoological taxonomy; but that is a problem that can be solved. When, however, we look at social class as a kind of network, the question of how many social classes there are falls away completely.

I should perhaps emphasize that the concept of a network is only one tool for use in the analysis of the phenomenon of social class. The other approaches I have mentioned above are equally valid, and indeed are necessary to any understanding of this complex social fact. As we are well aware, there is a fair measure of congruence between the different approaches. In general, most of a man's friends have approximately the same income as he has, live in the same sort of house, are classified together by other members of the society, and fight on the same side in those political and industrial struggles in which, if at all, social classes may perhaps be said to function as groups. For the purposes of this paper I shall nevertheless look at social class from merely the one point of view: as a network of relations between pairs of persons according each other approximately equal status.

4. A. Davis, B. B. Gardner, and M. R. Gardner, *Deep South* (1941). For a critique of the class concept from a logician's standpoint, see Llewellyn Gross, "The use of class concepts in sociological research", *American Journal of Sociology*, liv (1948–9), pp. 409–21.

This choice is not entirely an arbitrary one. It arises from the fact that Bremnes is a fairly small community, with no marked differences of culture and, with a few exceptions, minor differences in standards of dress, housing, and the like. In common parlance, there are few class differences in the parish. There are significant differences in income, but these are partly rendered inoperative by the lack of significant differences in patterns of spending. Under these conditions we do not find the emergence of a division of the population into distinct social classes one above the other.

It should be clear that such a division is not ruled out by the idea of class as a network. It is only pairs of persons who are directly in contact with one another in the class network who regard themselves as approximately of equal status; each person does not necessarily regard everyone else in the network as his equal. Suppose that *A* has a friend *B*. *A* regards *B* as his social equal, perhaps a little higher or a little lower in social status. As we have remarked earlier, not all *B*'s friends are friends of *A*. Suppose that *D* is a friend of *B*, but not a friend of *A*. Then, if *A* knows of *D* at all, he may or may not regard him as his social equal. If, for instance, *A* regards *B* as slightly beneath him in social status, but not so far below as to matter; and if *B* regards *D* in the same light; then there is the possibility that *A* will regard *D* as too far below him to be treated on a basis of equality. Similarly if *A* is below *B* and *B* is below *D*, *A* may think that *D* is too far above him to be treated as an equal. This process is cumulative with every step taken along the network away from any *A* we chose to start from. Thus for every individual *A* the whole of the network, or at least that part of it of which he is aware, is divided into three areas or sets of points. One of these sets consists of all those people to whom *A* is linked by a longer or shorter path, and whom *A* regards as his social equals. *A* is similarly linked to each person in the second set, but this set is composed of all the people that *A* regards as his social superiors. Similarly the people who in *A*'s estimation are his social inferiors form the third set. These sets are like the sets of cousins we mentioned earlier, in that membership of the sets has to be defined afresh for each new individual *A* that we choose to consider. Thus in the example given above, *D* belongs to the superior set with reference to *A*, but to the socially-equal set with reference to *B*. I think that in some, at least, of the many instances in which people of widely-varying economic position say that they belong to the middle class in a system of three (or more) social classes, they are merely stating that they are aware of the existence of these three sets of persons. It does not of itself imply that society can be divided into three groups with agreed membership.

I do not wish to digress further with the elaboration of this model of a class system. The idea has been developed sufficiently to deal with the comparatively simple conditions prevailing in Bremnes. In the first place, Bremnes is small, with a great deal of intermarriage. Hence in the network the number of links along the path joining any two members of the parish

is small, probably never more than four. Secondly, because Norwegian culture is egalitarian, everyone is ready to treat as an equal others whose income, upbringing, interests, and occupation differ widely from his own. Thirdly, despite the egalitarian dogma, people in Bremnes recognize the existence of differences in social status. They have stereotypes of the upper class who live in big houses in the towns, talk a different language, and have different religious beliefs. Bremnes folk also speak of a lower class, people who wander about unashamed, living on charity and scorning the aspirations of respectable citizens. In between these two classes are "plain ordinary people like ourselves". It is, in fact, the familiar egocentric three-class system, with ego in the middle class. Class is here a category of thought. In Bremnes, conditions are simplified in that, for the most part, everyone appears to think of almost everybody else in the parish as belonging to the same class as himself. Most people in the upper and lower classes, as defined by Bremnes folk, live outside the parish. When they visit the parish, members of these classes are treated by most of the resident population either as social superiors or inferiors, and not as equals.

Within the parish community, the range of variation is just sufficient for a few people, perhaps a dozen or so in number, to be regarded by many others as on the upper fringe of their sets of social equals. Yet others treat these dozen persons as social superiors. Similarly, there are a few people who are, in rather oblique fashion, treated as social inferiors by many in the community. However, this recognition of social inferiority is often masked, since it is impolite for anyone to show openly that he considers himself superior to anyone else.

The range of status variation is likely to increase in the future. In the community, some men are wealthier than others and although they only occasionally use their wealth to buy socially conspicuous goods and services such as cars, large houses, expensive clothes, pleasure yachts, and the like, they do buy more expensive education for their children. Up to the age of fourteen all children receive the same education in the parish schools, but it is the sons and daughters of the wealthier section of the population who, in the main, continue their education for a few years more. For many youngsters, this means leaving the parish and coming into contact with ideas and values different from those they have known at home. They acquire skills which, when they leave school, differentiate them from the majority of the labouring population, and which in a generation or two may well lead to sharper cleavages along class lines, or at least to a recognition of wider differences in social position. Similarly, on evidence from other parts of Norway, I think that the people lowest in the Bremnes social scale, most of whom are itinerant pedlars and beggars, are now more sharply distinguished from the rest of the population they were a hundred years ago, when many penurious cottars and day labourers lived in the parish; but I cannot document this for Bremnes.

Although there is this tendency towards greater differentiation in social status, it is slowed down by other social processes. Taxation is high, so that it is difficult for a man to amass a fortune, and since capital is taxed as well as income, it is also difficult for him to retain it. As part of the culturally-supported thesis that all should be treated alike, it is universally held that all children should inherit equally. Only a third of a man's wealth can legally be disposed of by will; the remainder must be distributed according to the laws of inheritance or intestacy. In Bremnes few wills are made and in nearly every case all a man's chattels, after provision has been made for his widow, are divided equally among his children. Thus in a society of large families, fortunes are dispersed at death. Even death duties operate differentially on the principle of "he that already hath more shall receive less". Where land is concerned, one child often takes over the whole of his or her father's farm, but even then he (or she) has to buy the land from the father so that the rights of the landless siblings may be protected. In education, inequalities of opportunity are to some extent offset by bursaries and interest-free loans from official sources, and by the custom of allowing adolescents to work for a year or two so that they can save enough to take themselves through the next stage of their education. All these factors hinder the speedy development of wide social differences even though the trend seems to be in that direction.

Thus in general terms we can say that in Bremnes society, apart from the territorial and industrial systems, there is a network of social ties between pairs of persons arising from considerations of kinship, friendship and acquaintance. Most, but not all, of these ties are between persons who regard each other as approximate social equals, and these ties of approximate equality we regard as one manifestation of the social class system, and shall call the class network. Although each link in the class network is one of approximate social equality, not everyone in the network regards everyone else as his equal, and there are a few people in the parish who are regarded by many others, but not by all, as belonging to a higher class. The class network is utilized for carrying out social activities, such as mutual help and home entertaining; class ties and also ties between people of recognized unequal status are used by men for a variety of other purposes, for example, to find places for themselves in the fishing industry.

IV

Cooperative activity requires some degree of leadership and consensus, whether carried out by enduring groups or by ephemeral groupings of persons linked by a network of social ties. Let us now consider some of the mechanisms by which leadership and consensus are obtained in Bremnes social life. Characteristically a network has no head and, as I have here used the term, no centre and no boundaries either. It is not a corporate body, but

rather a system of social relations through which many individuals carry on certain activities which are only indirectly coordinated with one another. In Bremnes, as we have seen, there is little class distinction, but the social activities which are typically carried on through the system of social class are there carried on in the same way as in a society with a larger range of class variation. People invite their friends to supper, or to a sewing party for the mission, or for a shooting trip, on the same basis of apparent approximate equality of social status, which is, I think, definitive of class behaviour. The network of friendship and acquaintance, when men seek out industrial opportunities, is used rather differently. Fish are actually caught, and a large number of distinct activities are brought into close coordination with one another. While fishing, men are no longer equals; they are organized in chains of command and differentiated according to function. For as long as the technical process demands, they are organized in fixed groups standing in a definite relationship one to another. At sea the skipper is in charge of his vessel, the coxswain in charge of his boat; they give orders and their subordinates obey. In the same way the marine-engine factory is organized hierarchically for purposes of production, with a board of directors, managers, foremen, and workmen. The groups of men who are thrown together on board fishing vessels or in the sections of the factory develop and perpetuate other modes of interaction which modify the configurations of the class network besides affecting the productive tasks themselves. In Homans' terminology, there is a clear-cut hierarchically organized external system, whereas the internal system is the network of friendship and acquaintance.[5]

Once we leave the field of organized industrial enterprise, the need for quick decisions and for a clear division of responsibility decreases. The achievement of consensus is valued more highly than speed of autocratic command. Decisions have to be made involving collective action: whether the teachers shall have salmon or cod at their banquet; whether the electricity supply cooperative shall take action against a member who has tampered with his meter; whether a boatload of fishermen shall go ashore to the cinema or to the prayer-ship. Such decisions are important, but their importance lies more in their consequences for face-to-face relations between members of the society than in their technical merits. Hence it is not surprising that the process of reaching the decision to hold a feast in the prayer-house is more complicated than that by which a command is given to cast a net in the sea. This is true whether the prayer-house is one belonging to a local community or to the hierarchically-organized factory.

Yet, as is usual in the Western world, most of the formal associations in Bremnes concerned with non-industrial activities have what appears on paper to be an hierarchical structure suitable for taking quick decisions in an autocratic way. There is, it is true, no one person in Bremnes who is head of

5. G. C. Homans, *The Human Group* (1951), pp. 273 ff.

local society, who might be called the chief of the island, but equally Bremnes is not a leaderless society. It is, as we say, a democracy, and there is a common pattern of organization which occurs in nearly every instance of formal social life. Each association has a committee, with powers to act usually for a year but sometimes for longer, elected by an annual general meeting. The committee, if it is big enough, elects a quarter of its members to an executive council to which most of its powers are delegated. The council and the committee each elect one of their members to be treasurer and secretary. The same man is often chairman of committee and council. There is also a deputy chairman and a number of deputy members who function only in the absence of the principal members. This common pattern is followed with only minor variations by sports clubs, missionary societies, producers' co-operatives, and by the local government itself.

All these bodies employ the same procedure for reaching a decision, by simple majority vote of those present and voting, provided there is a quorum. In practice, whenever possible they avoid taking a vote and the great majority of collective decisions are therefore unanimous. This tendency is most marked at the meetings of missionary societies and least at those of the parish council. Even in the parish council, when there is an irreconcilable division of opinion this is sometimes concealed by first taking a trial vote, to decide which view has greatest support; this is followed by a confirming unanimous vote, which alone is recorded in the minutes. Nevertheless there are in fact continual differences of opinion between members of all these different bodies. Why then is the achievement of formally unanimous decisions considered so important? Here I think we are dealing with a principle of fairly wide application. People living and working together inevitably have conflicting interests but in general they have also a common interest in the maintenance of existing social relations. Individual goals must be attained through socially approved processes, and as far as possible the illusion must be maintained that each individual is acting only in the best interests of the community. As far as possible, that is, the group must appear united, not only vis-à-vis other similar groups, but also to itself. Voting is a method of reaching decisions in which divergence of interest is openly recognized, and in which the multiplicities of divergence are forced into the Procrustean categories of *Yes* and *No*. Significantly, voting is rare in simple societies and in small groups of modern society. Membership in a collectivity implies accepting a share in the collective responsibility for the group's actions as well as a share in the decision to act in a certain way. The local associations in Bremnes are in the main face-to-face groups operating in a conservative environment. Even the producers' cooperatives, which had been responsible for introducing technological changes, are made up of men who have been neighbours for many years, who are related by kinship and marriage, and who are not trying to alter the existing pattern of social relations on the island, even though they may be trying to alter the position of the islanders

as against the rest of the region. In these conditions voting is an inappropriate procedure.

Furthermore, in voting, the worth of one man relative to another is fixed, and in most voting systems all men have equal votes. When decisions are reached unanimously after discussion, each man gives his own weight to the views of his fellows. Individuals present their views as though they had first been stated by someone else; they speak tentatively and cautiously; they try to win the support of divergent colleagues by saying that they agree with them all. The complex process by which a final decision is reached without the cleavages in the group becoming irreconcilable is one that I am not competent to analyse fully. The process is in part a corollary of the emphasis on equality that is noticeable in Norwegian culture. What is significant for our purposes is that it is a recognizable process which goes on in some social contexts and not in others.

There is one context in which voting by secret ballot is almost invariably used. When new committee members and officers have to be elected, pieces of paper are handed round, everyone writes down his choices and folds over his paper before handing it in. Thus the only topic that never comes up for open discussion is the relative worth of members of the community. I think there are two reasons for this. The election of committee members is the one occasion at which an immediate decision is absolutely necessary to prevent the structure of the association collapsing. Secondly it is difficult, though not impossible, to discuss the merits and demerits of one's friends in their presence without committing oneself so much that the appearance of general amity is threatened. As it is, most elections to local committees in Norway consist of re-voting into office the outgoing members, and sometimes a special sub-committee is appointed to draw up in private a list of nominations, so that voting becomes a formality. In this way the rivalries that threaten the unity of the community are hindered from coming into the open. In Bremnes there is, however, often free discussion about who should serve on those committees involving more hard work than honour.

The parish council differs from the other associations on the island in that it is required to act and cannot be merely a mutual admiration society. It is the local government in a society that is changing, even though it is changing fairly slowly. The leaky church roof must be repaired, and as the population increases more classrooms must be built. The council is under constant pressure from the provincial administration to collect taxes and to spend the money collected. Unlike the missionary societies and chess club and women's institutes, the parish council obtains a large part of the revenue for its projects from the State, and higher authorities audit its accounts, approve its budget, and bombard it with correspondence. It may try to move slowly, but it is continually forced to come to a decision one way or the other on issues about which the community has not yet made up its mind, that is to say, about which there are differences of opinion that have not yet been resolved.

Hence from time to time a vote must be taken. The usual techniques, or as some would say, tricks, are used by the mayor to gain unanimous approval, such as, for example, making the majority record their vote by remaining seated and the minority by standing up; all those who are in two minds about the issue probably fail to spring to their feet. In the same way, members of council try to avoid having to vote on matters in which they have divided loyalties, claiming that because of ties of kinship and affinity they are likely to be biased and therefore cannot discuss a particular matter fairly. On one occasion I observed, when an unusually controversial matter was up for discussion and three members had, one after the other, spoken briefly to say that they were related to the parties in the case and therefore could not take part in the discussion, the mayor intervened to point out that council members were probably all related in one way or another to the parties concerned, but that nevertheless they must come to a decision. Where associations other than the parish council are concerned, such embarrassing situations can usually be avoided. There is no State administrative machinery behind them to keep them going at all costs, and if serious latent differences are allowed to become apparent, the organizations may split.

Formal associations in Bremnes, despite their hierarchical form of organization, are not authoritarian. The existing structure of social relations in a conservative environment is maintained by seeking for apparent agreement for all decisions. With the parish council, speed of decision is more important and voting is more often employed. In industrial enterprises, both in the marine-engine factory and the fishing industry, where the environment is not conservative and quick decisions are needed, there is an hierarchical structure and this is effective and not merely formal.

V

Although there are many leaders of part of the parish, each of whom operates in certain restricted contexts, there is no overall leadership of the parish valid in a wide range of contexts, such as we are familiar with in the primitive world. We might perhaps call the pattern of public life in Bremnes "government by committee". In formal terms there are no long chains of command on the island. Instead there is a host of small organized groups with overlapping membership, and the whole population is enmeshed in a close web of kinship and friendship which links together all the people on the island, but which also ties them to kinsmen and affines scattered throughout Western Norway, and indeed throughout the whole world. In this system the people formally in positions of leadership are the elected chairmen of the various associations. They hold office for a fixed term but are very often re-elected unless they decide to resign. There are perhaps fifty voluntary associations of one kind or another, as well as about forty standing committees whose members are appointed or recommended for nomination by

the parish council. All these men occupy positions of some public responsibility. Slightly more in the public eye are the mayor, the rector and his curate, and the sheriff. None of these men can be said to represent the parish in its totality to the outside world, and all of them are involved with fractional interests within the parish. The sheriff and the rector are perhaps most removed from internal rivalries, but even they take part in politics, although they are civil servants and directly responsible to higher authorities outside the parish. The holders of both these offices stood as parliamentary candidates in the recent election. They are both elected parish councillors and members of various parish council committees in their own right as well as being ex-officio members of other committees. Even more involved in local politics are the mayor and the chairmen of standing committees.

In fact there are no living symbols of parish unity, or of the relation of the parish to other social groups, in any but a restricted sense. There is no one person in a key position who articulates the parish with a wider social system as happens in many simple societies. The mayor comes nearest to this, for he represents the parish on the provincial council, and is sometimes invited to serve as a director on the boards of public utility companies serving the parish. Yet even so he is not the representative of the parish in ecclesiastical or judicial matters or in the affairs of the missionary societies. This lack of a single leader or symbolic head is perhaps due to the fact that the parish is not a corporate group in the same way that, for instance, a minor lineage is a corporate group among the Tallensi.[6] Bremnes is a parish, a unit of civil and ecclesiastical administration and part of the Kingdom of Norway. Yet even in civil and ecclesiastical affairs the parish looks outward in different directions. Ecclesiastically Bremnes is part of Finnås parish union, which is part of Ytre Sunnhordland archdeaconry, which is part of Bjørgvin diocese; in civil matters Bremnes is an immediate subdivision of Hordaland province; while in judicial affairs it forms part of Finnås sheriff's area, which is part of Sunnhordland magistracy. One hundred and fifty years ago Norway was still virtually a Danish colony governed by what we would now call a system of direct bureaucratic rule. The various sections of the bureaucracy were largely separate and the local areas into which the country was divided for different purposes then coincided even less than they do now. During the nineteenth century, as the local population gained a greater share in public affairs, changes were made to bring the ecclesiastical, administrative, fiscal, and judicial divisions into alignment, but the coincidence is still not complete. Indeed the trend is now in the opposite direction, as new systems of organization cut across existing alignments, as for example the Home Guard and the electricity supply grid. The parish is a unit in some of these different organizations, but it is not an exogamous or endogamous unit; it is not an economic unit, and from most points of view it has no culture of its own. Its nearest

6. M. Fortes, *The Dynamics of Clanship among the Tallensi* (1945), p. 99.

approach to a social centre is the parish church, and it is here that the largest crowds gather, that common beliefs are affirmed, and changes in social life receive public recognition. Yet the church is not as widely supported an institution as it once was and its sphere of influence has considerably diminished. Although the process of social specialization has not gone as far in Bremnes as it has, say, in a London suburb, Bremnes is definitely not a simple society. The systems of organization within which the people carry on their activities are not congruent with one another. Neighbours, kinsfolk, workmates, fellow members of associations, are all becoming different.

In general, the mesh of the social network is growing larger. Nevertheless, the organization of Bremnes society is still largely an arrangement of cross-cutting ties and groupings in which not only friends and enemies, but also leaders and followers, are inextricably mixed. No one line of cleavage ever becomes dominant. The territorial system endures and the industrial system commands; but in this society the relationships that are valued most highly are still to be found in the shifting middle ground of social intercourse between approximate equals.

VI

So far we have looked at Bremnes society as an isolated object of study. In conclusion I want very briefly to consider Bremnes in relation to other similar societies. In reality Bremnes is not an isolated society, and there is the large descriptive and analytical problem of understanding the relationship between Bremnes and neighbouring parishes, and between it and the Norwegian State. These problems I shall not deal with here. The problem I want to glance at is a morphological one, of seeing Bremnes as an example of a particular type of society.

The centuries of development, and of stagnation, that lie behind the Bremnes society described in this paper can be summarized as follows. From A.D. 600 until 1300, during the Viking Age and later, the Norwegian State expanded to include all Norway, Iceland, and part of Sweden, with colonies further afield in Scotland, Ireland, the Isle of Man, and Greenland. From 1300 onwards the State declined under pressure from Denmark, Sweden and the Hanseatic League, and suffered badly in the Black Death. In 1380 Norway was joined to Denmark by a dynastic marriage and gradually sank to the effective status of a Danish colony, with a peasantry living largely in a subsistence economy. The administration was carried on mainly by Danes; the Danish language was used exclusively for writing, and commercial and industrial development lagged behind that of Denmark. During the eighteenth century the bureaucracy in Norway began to concern itself with the development of Norwegian, as distinct from Danish, culture and began to agitate for a Norwegian university. There was a considerable divergence of economic interest between Denmark and Norway, which was increased

by the vicissitudes of the Napoleonic Wars; communications with Denmark were cut by the British blockade and a Norwegian government was formed. In 1814 a constitution was drawn up, heavily influenced by the ideas of the American Constitution and the French Revolution. Instead of gaining independence the country was, however, joined in a dual monarchy with Sweden. After nearly a hundred years of political struggle this union was dissolved, without fighting, in 1905.

In Viking times all free men attended local assemblies with judicial and legislative authority and later there were higher assemblies made up of representatives of the various localities. In the twelfth century the assemblies began to lose their power, and control of local affairs passed to nominees of the king. Under Danish rule government became more bureaucratic, and the peasants, who provided the bulk of the army, had only the viceroy to protect them against the demands of the land-owning gentry and the Danish-speaking bureaucrats. In the eighteenth century much land passed back into peasant hands, but the common people remained unenfranchised. The 1814 constitution provided for a wide franchise and some wealthier peasants were elected to Parliament. It was, however, not until 1837 that a system of elective local government was introduced. Many of the first rural mayors were bureaucrats, such as priests, sheriffs and judges, but gradually more farmers and peasants were elected. The bureaucracy, which even in Danish times had theoretically been open to all, now began to have members of peasant origin. At the same time the status of the bureaucrats as leaders of local society declined and new positions of eminence appeared; the school teachers being perhaps the first group of mainly peasant origin to acquire semi-professional status.

In Danish times trade was carried on in the countryside by town burghers, but by the end of the nineteenth century there had been considerable intermarriage between the peasantry and the children of burghers stationed out in the country, and some peasants had started small trading posts on their own initiative. The comparative paucity of capital for investment in the towns meant that small-scale rural enterprises were often started by wealthier peasants rather than by townsfolk. At the same time the economy of the coastal region in the West, the part of Norway to which Bremnes belongs, underwent a change. Since time immemorial there had been fishing for the home market and for export, and as communications by sea and land improved this trade now expanded. Despite considerable set-backs the size of the catch increased over the years as more capital was invested in fishing vessels and nets. Down to the end of the nineteenth century most householders on this coast were both peasant and fisherman, but with the development of commercial fishing a division began to emerge between those who were mainly fishermen and those who were mainly peasants. A few fish salteries owned by town merchants and a few small boat-building yards were established rurally in the nineteenth century, and barrel-making flourished

as a cottage industry, yet it is only recently that large-scale rural industrial enterprises have become important in the economy of the fishing districts. There are now several canning factories scattered along the coast and, as electricity becomes more readily available, further industrial expansion is likely. Bremnes, with its marine-engine factory, is more industrialized and has been industrialized longer than many nearby parishes.

Thus a hundred and fifty years ago there were in each rural parish one or two bureaucrats living at a much higher standard than the rest of the population, speaking a different language, and moving from post to post without developing marked local affiliation. Below them in status were a few traders, usually burghers of a town; they had more local ties and were not so mobile as the bureaucrats. The rest of the population were peasants, with the freeholders occupying the highest stratum and accounting for about half of the peasantry. Next came the leaseholders, usually cultivating land owned by Danish-speaking gentry or by rich burghers. Under them came the cottars, or labour tenants, who worked so many days a year for the freeholders in return for the use of small holdings. Finally at the bottom of society were the landless labourers, the indigent, and vagrants. In this system the peasantry, although forming the great bulk of the rural population, had little say in public affairs, were undifferentiated in terms of occupation and culture, but were divided into ranks based on inherited rights in land. This system ended, and Norway became a quasi-independent State with elective local government largely as a result of international politics and social movements among the bureaucrats and in the towns, that is, as a result of social forces external to rural society. Nevertheless, after a generation or so, peasant leadership began to emerge, the old ranking system among peasants broke down; the status of the rural bureaucrats declined, and the rural economy became more diversified.

This sequence of events was in no sense the inevitable consequence of the ending of colonial rule, but it is clear that the break with Denmark supplied the initial impetus that started this train of events in Norway and even in Bremnes. It seems not improbable that similar events may have taken place in other former colonies. One of the major social movements of the twentieth century has been the partial breaking-up of those world-wide empires established by the Powers of Western Europe during the nineteenth century and earlier, and there are many older empires now long since fallen into decay. Yet the problem of the rural effect of political independence does not always receive the attention it merits. When a country achieves independence interest is at first naturally focused on transformations taking place at the centre and in the towns. When the colonial Power is driven out by armed insurrection or as the result of a long political battle, the struggle for liberation is at the same time the process by which a new *élite* is formed to take over from the old colonial governing class. This is presumably what happened in South America, and perhaps in Indonesia. In a large country the formation

of a new *élite* has greater social consequences for the towns and centres of government than it has for the countryside. In general colonial *élites* tend to concentrate in towns and military camps and are thinly spread throughout the rural areas. Hence the removal of the colonial Power may not at first have much effect on rural life. Liberation brings fresh faces in board-rooms and government offices, but the same people continue toiling in the fields. The ending of colonial government must of necessity bring about changes at the centre in the political structure of a new nation, but the effect rurally may be largely the replacement of, say, a White District Officer by a Black one. From the point of view of rural society the change to national political independence is then an event external to the system.

At other times the withdrawal of the colonial Power has been an event external to the social system of the colonial territory as a whole. An example of a withdrawal of this latter kind was the ending of Roman rule in Britain, when the critical conditions causing the withdrawal were to be found outside Britain. Yet, however remote from the rural areas may be the causes of colonial decline, in general the rural system will itself tend to change sooner or later. Occasionally rural change may precede political independence, as for instance in Israel, where for once we are fortunate in having more sociological information about rural conditions in transition than we have about changes at the centre. However, I think that we may say that usually the countryside lags behind the towns and the central institutions of a developing ex-colony, and changes in the pattern of rural life and family conditions come later and slower, if they come at all.

Thus, when a country is for one reason or another left to govern itself, the effect on the rural areas may be slight, delayed, or entirely lacking. A full discussion of why Bremnes society developed in the way it did cannot be attempted here. I would merely stress that the achievement of national independence was one factor of significance in that development and that the opportunities we have of studying the consequences of similar events in other rural areas should not be overlooked.

The vacuum caused by the withdrawal of a governing *élite* may initiate one social process, as we have seen in Bremnes with the gradual emergence of part-time peasants in key positions in the structure of government and organized social life. Industrialization is a quite distinct process which has occurred and is still proceeding in countries with widely varying forms of political institutions, some of them colonies, some former colonies, and others that have not experienced colonial status for many centuries. The evidence suggests that in all of these, whatever social system they have had in the past, some form of class society develops as industrialization proceeds; or, as I would rather say, that the emergent societies can at least be described partly in the imprecise vocabulary of social class. The process of industrialization has also begun in Bremnes, and is perhaps largely responsible for such gropings towards a class system as we have noted. Comparative evidence from other

societies at an early stage of industrialization, and from those in which new *élites* are being formed, may throw more light on the ways in which these two processes reinforce or neutralize one another.

BIOGRAPHICAL NOTE

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DIFFERENTIAL EFFECTS OF TRAINING ON PERSONS OF DIFFERENT LEADERSHIP STATUS[1]

STANLEY KLUBECK and BERNARD M. BASS

INTRODUCTION

Purposes

The purposes of this study were to demonstrate that for a *limited specified quasi-real situation*:

1. Leadership status can be changed through brief training.
2. There are differences in the tendency of individuals to profit from training—some persons will increase their leadership status significantly more than others following training.
3. Persons of initially higher leadership status are more likely to benefit from leadership training than those of initially lower leadership status.

Assumptions

While the trend in contemporary thought concerning leadership is most assuredly oriented situationally, the influence of individual differences in abilities and personality on the attainment of leadership status cannot be ignored. Although it is recognized that an individual's status as leader will depend to some extent on the specific situation and the nature of the group to be led, it is assumed that there are individual differences in the tendency to attain leadership status which cannot be accounted for by the variations in situations in which the individuals are placed. These individual differences cannot be accounted for merely by variations from one situation to another in what is deemed "adequate leader behavior". The influence of situational

1. The authors wish to express their appreciation to the many persons who helped on various phases of this study. These include Messrs. CecilWurster, Charles McGehee, Dean Clair, Arnold Gebel, William Hawkins, Miss Paddy Ann Doll and Dr. Graham B. Bell. This study was aided by a grant from the Louisiana State University Graduate Council on Research.

variations obviously will depend on the range of situations one wishes to include in any particular study. The more heterogeneous the kinds of groups included in a given analysis, the more important will the situational components be in contributing to individual differences in the attainment of leadership status. If, however, one narrows the range to leaders of college students only, or to leaders of verbal situations only, or to leaders of college students in verbal situations, it becomes obvious that variations in personality factors will account for most of the variance in leadership status. What is most important is to recognize the interaction of situational and personality factors in any evaluation or analysis of leader behavior.

Theories concerning the *emergence* of leaders such as the Great Man theory, the theory of cultural determinism, the compensation theory, or the reinforcement theory either maintain that personal traits are primary in the emergence of leadership behavior, or claim that situational factors are most significant. It is probable that the emergence of leadership behavior can only be understood in terms of the interaction of both personal and situational components. For this reason, the definition of leadership status offered below avoids any absolute assumptions about the relations of individual and situational factors and the amount each contributes to the emergence of leader behavior. Rather, leadership status is regarded as an outcome of the behavior the individual displays in a situation interacting with characteristics of the group situation in which he emerges as leader. What this behavior will be depends on the past history of the individual, his constitutional make-up, his immediate needs as well as the nature of the stimulating situation.

The present investigation emphasizes the study of personal factors associated with individual differences in tendency to become a leader, by confining the situations in which leadership may emerge to initially leaderless discussions among sorority girls. For the purpose of this study, *leadership status* is defined as *the extent to which a girl's behavior (as described by two observers) will result in the movement of her group in a shared direction usually towards common goals.*

Leadership Training

Although common sense, and experience in business, industry, government, the armed forces and education, suggest that leadership behavior can be modified through formal training, the writers have found little definite proof of the validity of this hypothesis.

Some suggestive evidence does exist. For example, Bavelas (19) trained three supervisors of children on a WPA project while giving no training to a control group. Definite improvement was noted in the trained leaders and the morale of their groups. Several reports of this kind are available.

Previous attempts in industry at evaluation of the effectiveness of leadership training have been conducted, essentially, for the purpose of determining

the extent to which the trainees have mastered the contents of the training programs. They have not evaluated the ultimate effectiveness of training—i.e., improved leader behavior or increased group effectiveness. Such studies have been described by Maier (16), Vonachen *et al.* (18), Mold (17), Katzell (15), and Cantor (8) as well as by many others. Essentially, these studies have determined how much knowledge can be gained by trainees from training, but there appears to be little evidence to support the conclusion that such gain in leadership "know-how" is correlated with increase in adequacy of leader behavior.

For example, Cantor, in developing a human relations training program to improve the leader behavior of supervisory personnel of the Farm Bureau Insurance Company, established three objectives:

1. To teach facts and principles concerning the psychological aspects of behavior and group functioning which would enable the trainee to become more competent in his knowledge and understanding of human behavior.
2. To increase the ability of the trainee to observe human behavior and understand the facts revealed by the behavior.
3. To teach concepts of personality adjustment in order to integrate achievements made in the first two objectives.

By means of various paper-and-pencil and rating procedures, Cantor then evaluated the extent to which his program attained those objectives. Thus, it is quite possible that even though these objectives were attained, the ultimate objectives of training—change in leader behavior—might not have been attained.

It appeared valuable to the present investigators to explore the extent to which training could change leader behavior *per se*. It also appeared important to see if some individuals would profit more than others from training. If these individual differences were observed, it would be of value to try to account for them.

PROCEDURE

The experiment was designed 1. to measure the leadership status of the subjects before training, 2. to train certain individuals in each group while the rest of the group acted as controls and 3. to remeasure the leadership status of all subjects and 4. to measure changes in the leadership status of those trained in comparison with those untrained taking into account previous status.

Subjects

Twenty sorority girls selected from each of seven different sororities at Louisiana State University served voluntarily as the 140 subjects for this

study. They were motivated to serve by suggesting that each volunteer would make a contribution to the scientific study of leadership and promising that each would receive a personal confidential report evaluating her performance and personality.

The subjects were divided into twenty groups, each of which contained one subject from each of the seven sororities, so that, in general, the girls in any specific group were not well acquainted with each other. Every girl knew at the beginning of the study exactly when she was to appear as a group subject, but none of them knew who the other members of her group would be.

Method of Measuring Leadership Status

The descriptive rating of behavior during an initially leaderless group discussion was selected as the measure of leadership status before and after training. This technique was selected for the following reasons:

1. The leaderless group discussion has high intrinsic validity of leadership status of each member is defined as the extent to which he moved his group in a shared direction. That is, it is valid by definition since ratings based on LGD performance measure, or, at least, attempt to measure, the extent to which each member contributed to the movement of his group in a shared direction.
2. Behavior during the LGD appears consistent (e.g., 7, 10, 12).
3. Agreement among LGD raters is high (e.g., 4, 5, 7, 20).
4. LGD performance correlates to some extent with various other measures of leadership status (e.g., 2, 4, 5, 9, 10, 11, 20).
5. The LGD is relatively easy to administer.

The initially leaderless group discussions were run as follows:

A designated group of seven girls was arranged in the shape of an inverted V with two well-trained observers seated at the open end. The subjects were given a list of questions such as "Should coeds marry while still in college?"; "Are girls' schools better than coeducational colleges?" Or "On what bases should sorority pledges be selected?" They were directed to select one question and to discuss it without help from the observers for 30 minutes to arrive at a set of conclusions about the question.

Fifty-two questions were randomly divided into four lists, only one of which was presented at each discussion. The questions for discussion were designed to be stimulating enough to provide for a full thirty-minute discussion and to be of a general enough nature to warrant the assumption that all participants had a fairly equal fund of knowledge about each issue. This helped keep at a minimum the effects of knowledge specific to a given situation as a source of individual differences in the attainment of leadership status.

The two observers independently rated each participant on the extent to

which she exhibited each of seven highly intercorrelated (average r = ·84) behaviors, all of which were conceived as items indicating the extent to which a ratee was moving the group in a shared direction. The behaviors were: 1. being effective in saying what she wanted to say; 2. offering good solutions to the problem discussed; 3. showing initiative; 4. defining the problem and organizing the group's thinking; 5. motivating others to participate; 6. influencing the other participants, and 7. leading the group. The observers used a five-point scale ranging from zero (*She did not exhibit this behavior at all*) to 4 (*She exhibited this behavior a great deal*). The assigned points were summated, and the two observers' summated ratings for each girl were combined. The range of scores possible for each girl was from 0 to 56. This combined score was used as the measure of each girl's attained leadership status. Hereafter it will be called the LGD score.

The correlation between the two observers' ratings was ·83 on the first discussion. The test-retest reliability of the total LGD score was determined by correlating 100 untrained participants' first or pre-training LGD scores with the second or post-training LGD scores. The test-retest correlation was ·75.

Method of Training

A half-hour private training session was interpolated between the first and second discussion. It had two phases. The first phase was designed to establish rapport, to motivate the trainees to consider the phenomenon of leadership, and to arouse their interest in the training process. This first phase was conducted in as permissive a manner as possible after certain questions were asked of the person interviewed. The second phase was a private lecture with opportunity for questioning the lecturer.

The first phase consisted of the following questions and explanations:

"*How did you like the discussion?*"

"*What do you think was the purpose of the discussion?*"

"*Assuming that you are an employer in a large business firm, how would you go about selecting someone to be a vice-president? Suppose that there were seven employees in your concern, who, on the basis of their past performance, academic record, etc., qualified for that position? How would you select one out of the seven to fill the position?*"

The usefulness of the LGD as a leader selection device was discussed. The subjects were told that the purpose of the interview was to try to train them to improve their leadership ability but that "*it is obviously impossible to train a person to do much of anything in half an hour. What we will attempt to do is to crystallize your own thinking about how a leader should behave, and perhaps point out several things about which you were previously unaware. Before I tell you what we believe to be the qualities of a leader, I would like you to tell me what you consider to be the most important ones.*"

After the subject mentioned several traits she was asked to consider which person or persons she believed led the first discussion, and to describe the things that they did and said.

The lecture phase of the training period described how most leaders supposedly behave according to people who had done extensive research in the field of leadership and group behavior. Leaders were described as persons who help the group find solutions to its problems, who speak effectively, who show initiative, who influence the other members of the group, and so forth. Each point was described in some detail.

The coaching was concluded with:

"*This little chat which we've just had cannot really be considered training in the classical sense of the word. You've probably noticed that whereas I've discussed some of the qualities of a leader, I did not tell you how you could apply them in a given situation. I did not tell you how because I don't know. In your own behavior you've probably utilized many of these factors, but, in all likelihood, you were not aware of the fact that you were using them. If, however, through becoming aware of these things, you can improve your participation in another discussion which you are going to have in a few moments, then we can consider this as training and we can consider it successful.*"

EXPERIMENTAL DESIGN

Pretest

Over a thirteen-week period, forty initially leaderless group discussions took place. Each of the twenty groups of seven girls participated in two discussions, one before training and the other after training. The first discussion was held for the purpose of determining the present leadership status of the participants. It constituted the pretest or the measure of leadership status prior to training.

Intervening Activity

The seven girls of a given group were each treated differently during the period which intervened between the pre-test and post-test discussions. How each was treated depended on the LGD score she earned on the pre-test discussion in comparison with the other members of her group. If she earned the highest score—i.e., ranked first in her group on the LGD—she was administered a Rorschach Test or else she was subjected to a one-hour personal interview where she mainly was allowed to talk about herself and her relations with others. If she earned the lowest LGD score in the pretest—i.e., ranked seventh in her group on the LGD—she was treated in the same manner. Thus, half the subjects who ranked first and seventh were administered Rorschach Tests, and half were administered personal interviews following the first discussion. If a girl ranked second, fourth, or fifth in comparison to the other participants in her group in LGD score on the pretest,

she spent the period between pretest and post-test filling out a *Guilford-Zimmerman Temperament Survey* inventory and making ratings of her sorority sisters and herself.

The forty participants who ranked third and sixth on the pretest discussion in LGD score in comparison to the other members of their respective groups spent the intervening period in training in the manner described in the preceding section. In summary, the forty girls who ranked in their respective groups third and sixth in leadership status attained on the first leaderless group discussions were given training while the hundred girls who ranked first, second, fourth, fifth and seventh were not trained. These seven ranks will be referred to by Roman numerals (I through VII) in describing the results of the study.

Post-Test

The group was reconvened for a second discussion. The purpose of the second discussion was to evaluate the leadership status after training of the subjects who experienced training in comparison to those who were not trained. It was conducted in the same manner as the first discussion. A new list of topics was presented to the group, the instructions were repeated and the discussion was started. The same two observers rated the discussion behavior of each participant, using a fresh copy of the same rating scale, to make a second evaluation of the extent to which each participant attained leadership status during the second discussion. This rating was made by the observers as independently as possible of their first discussion ratings and without specific knowledge of which girls had been trained.

RESULTS

A series of five analyses of covariance were made to compare participants' changes from pre-test to post-test discussions in attained leadership status—i.e., in LGD score.

Comparison No. 1 concerned the significance of variations among the seven ranks (I through VII) in changes in LGD scores from pretest to post-test.

Comparison No. 2 considered the significance of differences in changes made in LGD score from pretest to post-test made by the forty trained participants in comparison to changes made by the one hundred untrained participants.

Comparison No. 3 concerned the significance of differences between changes in LGD score from pretest to post-test made by the twenty trained participants of Rank III—participants of fairly high initial leadership status —and the one hundred untrained participants.

Comparison No. 4 treated the significance of differences between changes

in LGD score from pretest to post-test made by the twenty trained participants of Rank VI—participants of fairly low initial leadership status—and the one hundred untrained participants.

Comparison No. 5 considered the differences in change in LGD score from pretest to post-test made by the twenty trained participants of Rank III and the twenty trained participants of Rank VI to study the effects of training on participants of fairly high initial leadership status in comparison to those of fairly low status.

The Problem of Homogeneous Variance

Bartlett's test of the homogeneity of the variance disclosed the existence of significant variations from rank to rank in the variance as well as the covariance of LGD scores.

Inspection of the data revealed that the variance of LGD scores within each rank increased as the means of scores decreased. Accordingly, the original LGD scores indicating leadership status attained were transformed using the transformation equation of $X' = \frac{(X + 10)^2}{100}$ where X′ refers to the transformed score and X to the original score. The transformed scores ranged from 0 to 36.

Bartlett's test of the homogeneity of the variance from rank to rank of the transformed pretest LGD scores, of the homogeneity of the variance from rank to rank of the transformed post-test LGD scores, and of the homogeneity of the covariance from rank to rank of the two transformed scores yielded corrected *chi* squares of 5·3, 3·3, and 5·6 respectively. For 6 degrees of freedom, these values would be very likely to occur by chance. It was inferred that the transformation was successful in removing the heterogeneity of variance and covariance. It was these transformed LGD scores which were used in the five analyses of covariance described below.

Comparison No. 1: Were there statistically significant variations in the extent to which participants from different ranks changed in LGD score from pretest to post-test? [2]

The F of 203·7 was significant at the 1 per cent level of confidence for 6 and 132 d.f. for the analysis of covariance comparing participants' changes in score from pretest to post-test as a function of their respective ranks on the pretest. It was inferred that participants of different ranks in the pretest changed differentially in transformed LGD score from pretest to post-test.

2. The specific null hypothesis was as follows:
If the variance in means from rank to rank in post-test LGD scores are adjusted by subtracting that portion of the variance which can be accounted for by the corresponding variance on the pretest, there remains no variance among ranks in post-test means which cannot be accounted for by the remaining variance of scores within ranks, similarly adjusted.
Null hypotheses similar to this will be implied but not formally stated in describing the other analyses of covariances.

Column 6 of *Table I* shows the extent of the variations. Rank III girls obtained a mean transformed LGD score on the post-test 3·5 points higher than would have been predicted knowing the mean score attained by Rank III girls on the pretest. Similarly, Rank VII girls appear to have shifted upwards in score more than would have been predicted while girls of Ranks I and II shifted downward more than expected. Girls of Ranks III, IV, V and VII made relative gains in LGD score while the remaining ranks lost in score.

TABLE I *MEANS AND MEAN CHANGES IN TRANSFORMED LGD SCORES FOR DIFFERENT SAMPLES OF SUBJECTS* ($N = 140$)

Sample	*N*	*Mean Pre-test Score*	*Predicted Mean Post-test Score*	*Mean Post-test Score*	*Mean Relative Changes Unaccountable by Chance or Regression (Col. 5–Col. 4)*
(1)	(2)	(3)	(4)	(5)	(6)
Rank I	20	28·7	26·0	24·6	−1·4
Rank II	20	23·7	21·5	16·6	−4·9
Rank IV	20	16·3	14·7	15·0	+0·3
Rank V	20	13·2	11·9	12·4	+0·5
Rank VII	20	4·6	4·0	6·6	+2·6
Pooled Untrained Subjects	100	17·3	15·6	15·0	−0·6
Rank III	20	19·3	17·5	21·0	+3·5
Rank VI	20	9·6	8·6	7·9	−0·7
Pooled Trained Subjects	40	14·4	13·0	14·4	+1·4
All Subjects	140	16·5	14·8	14·8	0·0

Comparison No. 2: Was there a statistically significant difference in the extent to which the forty trained participants changed in LGD score from the pretest to the post-test in comparison to the changes made by the one hundred untrained participants?

For the analysis of covariance to answer the above question, with 1 and 137 d.f., the obtained F of 5·5 was likely to occur less than five times in one hundred on a chance basis. It was inferred that training was profitable for all forty trained subjects considered as one single sample.

Table I shows that the forty trained subjects showed a mean relative gain of 1·4 in LGD score while the one hundred untrained subjects showed a loss of 0·6.

Comparison No. 3: Was there a statistically significant difference in the extent to which the trained girls of fairly high initial leadership status (Rank III) changed

in LGD score in comparison to changes made by the one hundred untrained participants?

The relevant analysis of covariance revealed that the mean relative improvement of 3·5 points in LGD score by the trained girls of Rank III was significantly greater than the mean relative loss of 0·6 by the one hundred untrained subjects. The F of 10·3 with 1 and 117 d.f. was significant at the 1 per cent level of confidence. It was inferred that participants with fairly high initial leadership status tended to profit significantly from brief coaching.

Comparison No. 4: Was there a statistically significant difference in the extent to which the trained girls of fairly low leadership status (Rank VI) changed in LGD scores in comparison to changes made by the one hundred untrained subjects?

The relevant analysis of covariance revealed that the mean relative loss of 0·7 in LGD scores of the twenty trained participants of Rank VI was not significantly different from the mean relative loss of 0·6 experienced by the one hundred untrained girls. The F of 1·64, with 1 and 117 d.f., was likely to occur by chance more than five times in one hundred. It was inferred that participants of low leadership status did not tend to profit or lose from training.

Comparison No. 5: Was there a statistically significant difference in the extent to which the high status girls (Rank III) profited from training in comparison to the low status girls who were trained?

The answer here was obvious. An F of 10·5 was obtained which for 1 and 37 d.f., was significant at the 1 per cent level. It was inferred that high status girls (Rank III) gained significantly more following training than low status girls (Rank VI).

SUMMARY AND CONCLUSIONS

The three hypotheses stated at the beginning of the article were verified by the results of this experiment. That is: 1. leadership status, as defined, can be changed through brief training; 2. there are individual differences in tendency to profit from training, and 3. persons of initially higher leadership status will profit the most from training.

A number of points may be made concerning these hypotheses.

LGD *Score and Immediate Extrinsic Motivation*

One might assume that the LGD score was strongly determined by immediate extrinsic motivation. That is, it might be supposed that those who earned a high score in the LGD did so because they perceived that specific rewards were available in the situation for them. Any participant to whom these rewards appealed could and did attain a high score. If there was

no strong appeal for a given individual in the immediate situation, her behavior and score showed remarkable differences. It could then be deduced that the coach merely increased momentarily the extrinsic motivation of the subjects he was supposed to train and thereby significantly increased their LGD scores.[3]

A number of considerations make this deduction untenable. First, an unpublished pilot study (3) using a group counterbalanced design found little change in LGD behavior or scores obtained when the same participants were tested under radically different extrinsic motivating conditions—"practice" versus a "mid-semester examination". If anything, very high extrinsic motivation seemed to disturb the performance of the group as a whole.

Second, if immediate extrinsic motivation was responsible for wide individual differences in performance on the LGD, then it would be reasonable to conclude that girls of Rank III were highly motivated initially while girls of Rank VI were low in extrinsic motivation initially. If the coach was providing additional extrinsic motivation to the girls, one should expect the girls of Rank VI to improve in performance more than the girls of Rank III. Yet the girls of Rank VI did not improve at all.

Another motivational explanation is possible. Informing Rank III and Rank VI girls what a good leader did may have led Rank III girls to believe themselves to be partial successes on the initial trial while Rank VI girls may have been led to the conclusion that they were failures. This resulted in differential motivation to succeed in the post-test.[4]

While this last alternative cannot be discounted, the investigators would place more emphasis on the inference that individual differences in performance in the LGD are associated with basic, fairly stable, personality needs and skills of the individuals—as has been shown by Bass, McGehee *et al.* (6). The brief coaching period somehow increased the leadership "know-how" of girls of Rank III—and it possibly did the same for the girls of Rank VI. However, it was only the initially higher status girls who had the previous personality organization of traits, needs and skills who could effectively integrate this new information and actually put it to use. While it is impossible to tell from this study, whether the initially low leadership status girls failed to grasp the knowledge or merely were unable or were lacking in the intrinsic motivation to apply it effectively, Canter's (8) study suggests the former alternative, for Canter found that supervisors initially high in leadership knowledge gained the most in knowledge during a supervisory training course while those initially low gained the least.

3. In this context, *intrinsic* motivation would refer to basic personality needs such as the need for recognition, belonging, aggression, security, etc., which are relatively stable and difficult to alter in a brief period of time.

4. This suggestion was made by Cecil Gibb during an S.S.R.C. seminar on Leadership in Small Groups, Hanover, N.H., Summer, 1952.

LGD *Score and Intolerance of Ambiguity*

The failure of the Rank VI girls to profit from training may be accounted for by connecting the result with several findings from other studies.

First, as many investigators such as Gibb (13) have pointed out, the LGD is a highly ambiguous social situation. The major task in the LGD is to establish a social organization or a status hierarchy. Second, a number of research studies (1) have disclosed the existence of the authoritarian personality—an individual who in addition to being ethnocentric in attitudes toward social relations is also found to be stereotyped, rigid, authoritarian, conventional, lacking in resourcefulness, and unable to tolerate ambiguity. Third, Bass, McGehee *et al.* (6) have demonstrated that extremely authoritarian personalities do most poorly on the LGD. Evidence of this also appears in comparing Rorschach protocols of subjects from Rank I and Rank VII.

Finally, Coates and Bass (10) have found significant correlations of ·32 and ·33 between LGD scores of ROTC seniors and Thurstone's Concealed Figures and Gestalt Completion tests. These latter tests appear to the authors to measure aspects of perceptual flexibility.

From these various sources of evidence, it may be deduced that the girls of Rank VI had a low tolerance for ambiguity—a personality inadequacy relatively unmodifiable during brief training—which made their performance on the LGD ineffective both before and after training.

Coaching and LGD *Validity*

More and more use is being made of the LGD as a personality assessment device for identifying potentially successful supervisors, teachers, military leaders, administrators, and so forth. It is probable that many candidates will seek and obtain coaching prior to undergoing the test. Will such coaching eventually ruin the utility of the LGD? The present study suggests just the opposite—coaching ought to increase the validity of the LGD.

Harris (14) was of the opinion that one could not "cram" for the leaderless group discussion. He felt that priming a candidate, rather than help, would most likely handicap the LGD participant by "inhibiting his spontaneity". While Harris' opinion may be valid for candidates of low leadership potential, it must be qualified, for this study has demonstrated that coaching actually benefits to some extent participants of fairly high status.

The results of this study suggest that cramming may serve to increase, rather than decrease, the individual differences in leaderless group discussion behavior. Since Bass, Klubeck and Wurster (5) have found a significant correlation of ·24 between the validity of any given LGD and the variance of scores earned on that LGD,[5] it may be that all leaderless group discussion participants should be trained briefly prior to the test run on the technique.

5. This correlation is only reduced slightly when the effects of variations in LGD observer reliability (a correlate of both LGD score variance and LGD score validity) are partialed out (5).

This conclusion has strong implications for persons using the leaderless group discussion for the selection and identification of potential leaders.

Of course, long term training would probably be an entirely different matter. Thus, if an ineffective individual underwent psychotherapy successfully which led to favorable modifications in his needs and self-esteem, there is no reason to reject the possibility that he would exhibit improved performance on the LGD. Lengthy training of all LGD participants might serve to reduce the variance of LGD scores and the validity of the LGD.

Leadership Selection Versus Leadership Training

The results of this study appear to confirm the common-sense notion that persons differ in the extent to which they are amenable to leadership training. This study lends support to the argument that valid selection combined with valid training procedures will provide the most profitable approach to improving the caliber of leadership within an organization.

BIBLIOGRAPHY

1. ADORNO, T. W., FRENKEL-BRUNSWIK, E., *et al. The Authoritarian Personality*. New York: Harper, 1950.
2. ARBOUS, A. G., and MAREE, J. "Contribution of two group discussion techniques to a validated test battery", *Occup. Psychol.*, 1951, *25*, 1–17.
3. BASS, B. M. A Pilot Study of the Effect of Extrinsic Motivation on LGD Behaviour. (Unpublished.)
4. BASS, B. M., and COATES, C. H. "Forecasting officer potential using the leaderless group discussion". *J. abn. soc. Psychol.*, 1952, *47*, 321–325.
5. BASS, B. M., KLUBECK, S., and WURSTER, C. R. "Influences on the reliability and validity of leaderless group discussion assessment", *J. appl. Psychol.* (In Press.)
6. BASS, B. M., MCGEHEE, C. R., HAWKINS, W. C., YOUNG, P. C., and GEBEL, A. "Personality variables related to leaderless group discussion behavior", *J. abn. soc. Psychol.* (In Press.)
7. BASS, B. M., and NORTON, F. T. M. "Group size and leaderless discussions", *J. appl. Psychol.*, 1951, *6*, 397–400.
8. CANTER, R. R. An Experimental Study of a Human Relations Program. Unpublished Doctoral Dissertation, The Ohio State University, 1949.
9. CARTER, L., HAYTHORN, W., MEIROWITZ, B., and LANZETTA, J. "The relation of categorizations and ratings in the observation of group behavior", *Hum. Rel.*, 1951, *4*, 239–253.
10. COATES, C. H., and BASS, B. M. Studies of Leadership in ROTC. (In preparation.)
11. DOLL, P. A., and BASS, B. M. Situational Tests: V. Validity of LGD Assessment of Unacquainted Women. (In preparation.)
12. FRENCH, R. L., and BELL, B. "Consistency of individual leadership

position in small groups of varying membership", *J. abn. soc. Psychol.*, 1950, *45*, 764–767.
13. GIBB, C. A. "The principles and traits of leadership", *J. abn. soc. Psychol.*, 1947, *42*, 267–284.
14. HARRIS, H. *The Group Approach to Leadership-testing*. London: Routledge and Kegan Paul, 1950.
15. KATZELL, R. A. "Testing a training program in human relations", *Personnel Psychol.*, 1948, *1*, 319–330.
16. MAIER, N. R. F. "A human relations program for supervisors", *Indust. Labor Relat. Rev.*, 1948, *1*, 443–464.
17. MOLD, H. P. "Outline of a complete training program", *Personnel J.*, 1947, *26*, 75–79.
18. VONACHEN, H. A., *et al.* "A comprehensive mental hygiene program at Caterpiller Tractor Co.", *Indust. Med.*, 1946, *15*, 179–184.
19. WATSON, G. (Ed.). *Civilian morale*. New York: Reynal and Hitchcock. (See A. Barclas, *Morale and training of Leaders.*)
20. WURSTER, C., and BASS, B. M. "Situational tests: IV. Validity of leaderless group discussions among strangers", *Educ. Psychol. Measmt.* (In Press.)

BIOGRAPHICAL NOTE

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THE DIRECTIONS OF ACTIVITY AND COMMUNICATION IN A DEPARTMENTAL EXECUTIVE GROUP[1]

A Quantitative Study in a British Engineering Factory with a Self-recording Technique

TOM BURNS

I. INTRODUCTION

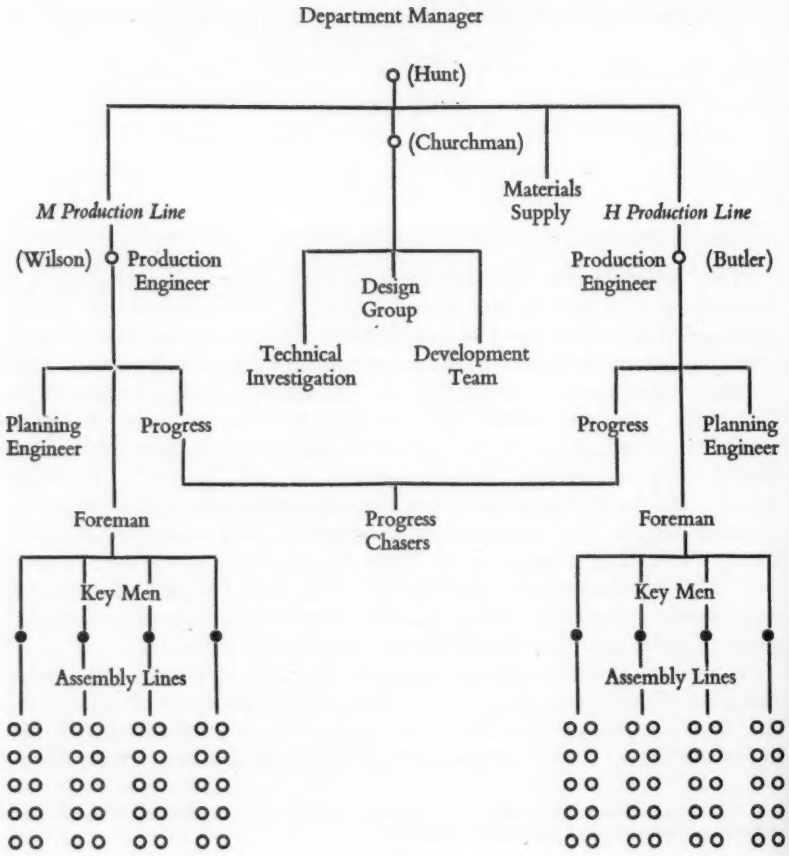
This paper reports an experiment in cooperative self-recording in a department of a British engineering factory. It was designed to provide information about the way in which individuals at executive level spent their time, about their field of interaction, and about the distribution of work within a departmental executive group. The aim was to codify some of the descriptive categories which could be applied to the activities of departmental executives, and so enable each individual participating in the study to record easily and quickly "what happened" in each "action". The results which could be expected would be those expressible as simple distributions in terms of time. But it was the virtual absence of any reasonably adequate answers to such first questions as "how do executives spend their time?", and "with whom do they communicate?", that made this particular research seem worth undertaking. These questions arose in the course of an extended study of social organization and change in industrial concerns.

It seemed that the project described by Sune Carlson in *Executive Behaviour* (Stockholm, 1951) would lend itself, suitably modified, to the elucidation of precise information. This project was directed towards obtaining an assessment of the distribution of effort by the working heads of large

1. The Author wishes to acknowledge the assistance of Mr. E. L. Trist of the British Editorial Committee in preparing the final manuscript of this paper.

business organizations, and was confined to the managing director in each of seven concerns. A good deal of the interest lay in the discovery of how time was distributed between internal and external matters. The present study developed and applied the method to a group. The group consisted of four men: the manager of a department, and the two production engineers and chief designer immediately subordinate to him. They were, therefore, members of a factory management at some remove from the chief executive, but all closely associated. The department studied employed 128 people, rather more than half of whom were women. Operating to a large extent as a separate unit, it maintained its own design team, responsible for the product design, although it used the resources of the large research and

FIGURE 1 *CONVENTIONAL DIAGRAM TO SHOW FORMAL ORGANIZATION OF DEPARTMENT*



development establishment within the total factory. Sales and programming were the responsibility of the departmental manager, although, again, he was able to draw on the resources of the overall sales organization, and of costing, estimating, and other office services. Maintenance, testing and inspection were joint services operated for the whole factory.

The participants in the experiment were "Hunt", the departmental manager; "Churchman", who was responsible for design and had acted as departmental manager during prolonged absences of "Hunt"; "Wilson", production engineer in charge of "M" assembly line; and "Butler", production engineer in charge of "H", the other assembly line. The formal organization of the department would be conventionally presented as in *Fig. 1*.

The concern as a whole has grown rapidly during the past five years, the department sharing in the expansion to at least an equal extent. Production was at two or three times the level of two years ago. Although sales and prices were beginning to give some concern, new designs, based on a development programme much bigger than anything the department had previously operated, were expected to overcome future difficulties.

II. METHOD AND PROCEDURE

The experiment was designed to test the use of a standardized schedule, along the lines suggested by Carlson; to record the activities of a group of persons in executive status in a factory; and particularly to obtain a record of the other persons with whom the recorders interacted—through face-to-face conversation, letter, memorandum, drawing, telephone, or some form of non-verbal communication. The persons included in an *episode* determined its separate recording. If the membership of an interaction situation changed, a new record form was used. Some latitude had to be allowed, but it was left to the individual recorder to fix a lower limit for the length of episode he would record separately. In two cases, separate episodes of one minute or two minutes were frequent; with the other two (the production engineers) the lower limit was usually five minutes, and one of these latter treated time spent on the shop floor as one episode, aggregating persons and other items on one form.

Activities may also be analysed according to another classification—that of content—though here we are on less sure ground. Management behaviour is ordinarily perceived according to the functionally differentiated groups of executives in an organization, and classification of behaviour into categories by "content" becomes a relatively simple matter, if such categories (being those observed by management itself), are followed. And it was, for the purpose of this experiment, necessary to follow management's views of its own main directions of activity for both methodological and practical reasons. In the first place, the running of the scheme depended on the ease and familiarity with which the schedule and the categories employed could

be used by the recorders; and secondly, it was, from its inception, a cooperative venture in the planning of which they took a considerable part. The results are not so much objective statements about behaviour, as statements of opinion about behaviour. What each recorder noted was what he thought he was doing. This is an important proviso from which some significant results emerged.

By agreement, then, activities were divided into ten categories according to subject. These were:

Sales
Personnel
New Development and Research
Costs
Production Difficulties affecting Design
Production Difficulties—other
Other Production Matters
Office and Organization
General Factory Matters
Personal.

Most of these headings will be self-explanatory. "Office and Organization" was introduced to cover action and conversations to do with the redistribution of time or of executive effort. "General Factory Matters" relates to information and discussion about people and affairs not directly, or solely, concerning the department's activities, and "Personal" was reserved for affairs private to the individual recorder. "Personnel" was a category left purposely undefined, except that it included matters arising from rate-fixing and time study (both of which operated for the factory as a whole).

Each of the subject categories was subdivided into "old", "present", and "future" in an attempt to ascertain the extent to which executive action at the three levels concerned was related to "post-mortem" and to "policy-making" activity. Judgments seemed to vary so considerably as to what should be noted as old, new, or future that this aspect of the record has been omitted from the analysis.

A further main category applied to the interaction process. Although "communication" has become something of a gadget-word in the social sciences, it is possible to view executive structures as communication networks and to view the executive function as the effective communication of information to appropriate destinations in the organization. This aspect of behaviour was quite familiar to the executives concerned. The recorders therefore noted whether they or someone else initiated an interaction and classified it according to whether it involved *obtaining*, *giving*, *systematizing*, or *recording* information. A further category of *explaining* was added, to cover situations in which mere transfer of information from one group or indivi-

dual to another was insufficient without some reinterpretation. *Information* itself was broken down into four categories: *decisions*, *instructions*, *advice*, and *information*. These were not defined closely, but taken generally in the sense of common usage. Decisions and advice were given in response to requests or appeals. Information and instructions were conceived as one-way communications. (This did not exclude a recorder from noting both giving and receiving information in a single episode.)

It was necessary to record the time of an episode, and whether it took the form of a conversation, a telephone call, a letter or memorandum (written or read), or whether it took place without verbal communication (e.g. drawing, watching operations, etc.). Movement about the factory was recorded by noting the location of any episode taking place away from the recorder's own desk.

The experiment ran for every working day of five weeks (25 days, or 28 in the case of Butler, who put in time during two week-ends). There were some differences in the procedures followed by each recorder, which will be commented on later, but the number of separately recorded episodes averaged 34 per day, individual averages ranging from 40 (Churchman) to 25 (Butler). Recorded episodes included all happenings in the factory or during working hours.

The operation of the project was left to the departmental manager after agreement had been reached on the design of the form and the general lines on which it should run. This was a considerable advantage in that doubtful points could be settled immediately by consultation on the spot, whether or not the researcher was present. It fixed the field of the project definitively in the sector of self-recording. There was no reference to criteria advanced at the outset by an outsider.

Each recorder was provided with a sufficient quantity of forms, which were of small size, easily handled or pocketed. The forms filled during the course of a day were posted by each recorder, in separate envelopes, to the researcher. It was understood that the forms were to be filled in without consultation between recorders and that the forms themselves would be treated as confidential matter, reports dealing only with aggregates of episodes.

At the end of the five-week period, the information was transcribed on to punched cards, and analysed. No procedural difficulties were encountered during the experimental period. Indeed, the whole experiment, which had been suggested, discussed, and eventually launched by the researcher with considerable apprehension, went through with an altogether gratifying smoothness. So much so that the difficulty was in persuading the group to stop at the end of five weeks.

So far as could be adduced by observation at the time, by subsequent discussion, and by internal evidence, the conditions of careful recording were observed punctiliously, except in one instance. One of the production

engineers—Butler—tended to rely on memory for dealing with many of the occasions when he was away from his own desk. This became apparent when records of the same episode by two or more persons were checked against each other. As regards subjects (content categories), all recorders were reasonably consistent, except that, in Butler's case, the telescoping of a number of episodes in which the same subject was being pursued, but with different persons, meant that the distribution of time among the persons with whom he was in communication was far beyond any reasonable standard of error. The following are the times in minutes stated by each recorder as having been spent with other recorders present:

TABLE 1 *RECORDERS' TIME SPENT WITH OTHERS*

Recorded by	*Present with*			
	Hunt	*Churchman*	*Wilson*	*Butler*
Hunt	—	1,327	1,168	911
Churchman	1,352	—	1,002	439
Wilson	1,132	1,056	—	375
Butler	620	325	221	—

Error in the case of Hunt and Churchman is 2 per cent, 3 per cent for Hunt and Wilson, and 5 per cent for Churchman and Wilson. For all Butler's interactions with the others, the discrepancies are of a very different order. For this reason, all results concerning Butler must be treated as of dubious accuracy, and the figures relating to interaction field, which concerns persons, are for him left out of account altogether.

III. THE DISTRIBUTION OF TIME ACCORDING ACTIVITY CONTENT

The General Picture

The simplest answer to the question, "how did the four recorders spend their time?", is *in conversation*. On average the four spent 80 per cent of the total time recorded (890 hours) in conversation, including telephone conversations. Of the rest of the time (spent alone) most was occupied in writing or reading letters, memoranda, and reports.

A sizeable proportion of episodes covered more than one of the subject divisions. Discussions about new or projected product types would also be concerned with design difficulties and with costs and sales. Lengthy meetings of a semi-formal nature might cover a range of topics. Where an episode

covered more than one subject, the convention was adopted of dividing the time equally between all the subjects covered.

The allocation of an episode to a subject division was a matter for each individual recorder to decide for himself. While this was implicit in the nature of the experiment, differences in interpretation qualify the validity of any comparison of the distribution of subjects between the four executives. To take account of these differences, each recorder was asked, after the experiment was concluded, to estimate the proportions of his own time, and that of all four, spent on the ten subjects. The estimates given by each individual for the group as a whole are given in *Table 2*.

TABLE 2 *RECORDERS' ESTIMATES OF TIME SPENT BY WHOLE GROUP*

Subject Division	*Time per cent*			
	Hunt	*Churchman*	*Wilson*	*Butler*
Sales	5	5	5	5
Personnel	10	5	10	5
New Development and Research	5	10	15	10
Costs	10	3	4	15
All Production Matters				
Production Difficulties Design	20	30	15	15
Production Difficulties Other	25	30	15	10
Other Production Matters	10	5	15	20
	—55	—65	—45	—45
Office and Organization	8	5	15	5
General Factory Matters	5	5	5	10
Personal	2	2	1	5

These guesses show differences—some of them very considerable—which may imply differences of interpretation. But they also represent differences in the stereotyped image of executive behaviour, and in the way in which each member believes the other members of the group spend their time. Butler, for example (v. *Table 5*), credits himself with only 4 per cent of his time on New Development and Research, and 14 per cent on Personnel. Churchman allots 20 per cent of his time to New Development and Research (against 10 per cent for all four) and 20 per cent to Personnel (against 7·5 per cent for all four). Hunt thought he spent about the same time as the group on Personnel, and Wilson thought he spent less.

Estimated and Actual Time for the Whole Group

In *Table 2*, the mean estimates of the four recorders are compared with the actual proportions spent on each subject during the five weeks. Separate figures show the proportions when only those episodes recorded as dealing with one subject are taken into account. About 70 per cent of the group's

time was recorded as spent on one subject at a time, so that the third column in *Table 3* gives a useful check on the second.

Some discrepancy between the recorder's estimates and the actual distributions was to be expected. The interest lies in the categories in which large and consistent overestimates or underestimates were made. One of the most striking affects the "Personnel" subject division, in which the mean estimate was 7·5 per cent and the highest 10 per cent as against an actual time of 15 per cent. Everybody underestimated the time spent on "New Development and Research", and there were very large overestimates of the proportion of time engaged on production (three subject divisions).

TABLE 3 *ESTIMATED AND ACTUAL DISTRIBUTION OF TIME SPENT BY WHOLE GROUP*

Subject Division	*Time Per cent*		
	Mean of All Four Estimates	*Actual*	
		All Episodes	*Single Subject Episodes*
Sales	5	3	3
Personnel	7·5	15	14
New Development and Research	10	16	19
Costs	8	7	5
All Production Matters			
Production Difficulties Design	20	10	10
Production Difficulties Other	20	8	7
Other Production Matters	12·5	16	15
	—52·5	—34	—32
Office and Organization	8	12	12
General Factory Matters	6	10	11
Personal	2·5	3	4

The recorders themselves were highly surprised at the actual figures, especially at the discovery that only a third of their time was spent on production, and as much as a sixth on personnel. Expressed in a favourite management formula, this is equivalent to one executive in six being engaged wholly in personnel, while two out of three were not engaged in matters directly affecting production.

It was suggested by the recorders that the excess of actual over estimated time for Personnel arose from the number of discussions taking place over a new bonus system. This is reflected in a sharp rise in the aggregate number of hours spent on personnel during the fourth week (*Table 4*). On the other hand, considerable variations from the mean during the period may be expected to occur in any subject division which includes demands on time

arising from hourly contingencies, daily routine, and long-term policy. Fluctuations of similar dimensions may be seen in all three production subject divisions. The pressure of "Personnel" matters on the time of the group

TABLE 4 *DISTRIBUTION OF AGGREGATE NUMBER OF HOURS PER WEEK*

Subject Division	*No. of Hours spent by All Four Recorders*				
	Week 1	*Week 2*	*Week 3*	*Week 4*	*Week 5*
Sales	4	5	5	5	5
Personnel	24	19	15	42	29
New Development and Research	23	28	29	25	35
Costs	11	12	12	14	11
Production Difficulties Design	16	29	16	10	16
Production Difficulties Other	23	17	10	7	10
Other Production Matters	32	29	40	23	22
Office and Organization	21	20	30	22	13
General Factory Matters	20	21	11	16	15
Personal	6	9	7	2	3
Total	180	189	175	166	159

may be seen as evidence, in terms of actual time consumed, of the involvement of the management group in its relationships with the larger group of the department. Though this involvement reduced the time that could be spent on such matters as production, there was no awareness of this in the group's account of its activities.

Individual Distributions

We come now to the distribution of individual recorders' time. These figures are set out in *Table 5*, each person's estimate of the proportion of his own time spent in each subject division being shown alongside.

In *Table 5* the need to qualify discrepancies because of differences in interpretation does not arise, since both columns under each recorder's name derive from the same individual's interpretation of the subject divisions. The differences between actual figure and guess are, as might be expected, much smaller when the individual is dealing with his own behaviour, except in the case of Wilson, who was quite badly out in his estimate of the proportions of his time spent on personnel and on production. What are of greater significance are the differences in the two estimates given by each recorder of his individual distribution and of the group's. If *Table 5* (italicized figures) is compared with *Table 2*, it appears that Hunt, the department's manager, imagined that, although he himself might spend 30 per cent only of his time on production, the rest of the group would spend the greater part of their time attending to it. His estimate for the group was 55 per cent, implying

that the other three spent over 60 per cent of their total time on production. Although his own guess was an overestimate so far as he himself was concerned, he was much more in error in supposing that his deputy and production engineers spent two-thirds of their combined time on production. In fact, they spent 21 per cent, 30 per cent and 58 per cent respectively (or 36 per cent of their combined time). Churchman, the deputy, was even farther out, estimating 18 per cent for himself, and 65 per cent for all four, indicating an impression that the others spent three-quarters of their time attending to production. Butler, the oldest of the four, was closest in his

TABLE 5 *DISTRIBUTION OF INDIVIDUAL TIME*

Subject Division	*Time per cent*							
	Hunt		*Churchman*		*Wilson*		*Butler*	
	Actual	*Own Estimate**	*Actual*	*Own Estimate*	*Actual*	*Own Estimate*	*Actual*	*Own Estimate*
Sales	5	*11*	3	*10*	3	*3*	0·3	*5*
Personnel	11	*11*	23	*20*	17	*5*	11	*14*
New Development and Research	17	*17*	31	*20*	18	*12*	0·1	*4*
Costs	10	*14*	1	*5*	5	*3*	10	*18*
All Production Matters								
Production Difficulties Design	3	*11*	12	*10*	7	*15*	17	*18*
Production Difficulties Other	2	*11*	2	*5*	6	*15*	20	*18*
Other Production Matters	18	*11*	7	*3*	17	*20*	21	*9*
	—23	—*33*	—21	—*18*	—30	—*50*	—58	—*45*
Office and Organization	7	*6*	15	*20*	21	*20*	8	*5*
General Factory Matters	21	*6*	2	*5*	5	*5*	9	*5*
Personal	5	*2*	4	*2*	1	*1*	3	*5*

* The recorders first of all gave a "round number" which they then endeavoured to correct so that their self-distributions added up to 100 per cent.

estimates both for himself and for the whole group, and was the only recorder to overestimate the time for himself spent on personnel matters. Yet he, and Churchman, seemed to think that the others spent very little of their time on personnel matters, rating this subject division as low as 5 per cent of the group's combined times.

There are other discrepancies, especially between the estimated and actual proportions of time devoted to general factory matters, but perhaps enough has been said to show that the stereotype of their own and others' expenditure of time carried around by four factory executives was some distance from reality. It is possible that their estimates related more to their expenditure of effort, deriving from demands made on their energy and capacity

rather than on their time. As against this, the preoccupation with time characteristic of industrial managements makes more reasonable a rough equivalence between time and effort than could be accepted in other social contexts.

On differences in the actual distribution of individual time, the subject division "Personnel" again yields striking results. There is less difference between the four in this respect than in any other, "Personnel matters" occupying between 11 per cent and 23 per cent of each recorder's time. Differentiation of function shows up more clearly in other respects, especially in New Development and Research, Butler hardly being concerned. As head of the department, Hunt is more involved in the concerns of the factory as a whole through his contact with other departmental managers and with the top factory executives themselves, but Churchman, his deputy, appears less in touch with the affairs of the factory outside the department than either of the production engineers. There is a similar disparity in the expenditure of time on costs between the manager (10 per cent) and his deputy (1 per cent). The three divisions of production matters show an expected differentiation, "design difficulties" being reported to Churchman, as head of the design section, "other production difficulties" being mainly handled at the production engineer level, and "other production matters" claiming roughly equivalent proportions of time from the manager and the production engineers. The figures for Sales also show an expected differentiation, although with the manager's personal responsibility for sales, the difference in his time from those of Churchman and Wilson is less than might have been thought. Here, however, the five-week period is atypical, in that it was the manager's practice to keep in touch with the market by occasional round tours which took in several concerns. It so happened that these weeks went by without his making such a tour.

The most unexpected of the differences between the recorders occurs between the two production engineers. It is true that one, Wilson, was involved in a new development programme, but leaving this understandable difference aside, the fact that, for the whole five-week period, he spent little more than half the time the other spent on production matters is astonishing, especially as their estimated times are fairly close (see *Table 5*). Costs also seem to have entered far more into the estimate and actual performance of Butler than of Wilson (*Table 5*), and he also seems to have spent more time on general factory matters. Differences in the time spent by each on "office and organization" may be accounted for to some extent in a need for Wilson to arrange the detailed allocation of duties and jobs in connection with the new production lines arising from the development programme.

How far these results are typical of this kind of industrial concern it is impossible to say with any assurance. The department itself was industrially and commercially successful and had been built up by the present manager. Its management group was young, anxious to prove itself, and very much aware of the standards of management and supervisory practice applied in

its branch of the engineering industry. The group was also interested enough in its own procedures and its possible misconceptions of them to engage in this experiment. It may, therefore, be fairly widely true that working managements have a conception of the way in which their efforts are directed, of the weights which different aspects of their jobs are given, which are strikingly at variance with the facts. It may be that a great number of executives spend far less time attending to production matters than they think, and that they underrate the extent to which "personnel" affairs cut into their time. It may also be not uncommon for executives, such as the two production engineers, occupying apparently identical positions, to have very disparate work-loads because of hidden differences in their situations. The surprise of members of the group when confronted with figures of their actual expenditure of time probably indicates that they felt—or rather, felt confirmed in a suspicion—that they were consistently withholding due attention from one or other aspect of their jobs. On the other hand, it is more than likely that the figures point to overburdening in some aspects which reduced the amount of time and attention given to others. In this regard, special interest attaches to the high expenditure of time on "personnel" matters and on the closely related subject division of "Office and Organization" and to the unawareness of the group of the extent of its absorption in the "human relations" component of its activities, while exaggerating its capacity to preoccupy itself with production and especially of the other members so to preoccupy themselves.

IV. THE INTRA-DEPARTMENTAL INTERACTION FIELD

The Restricted Range of Contact within the Department

The factory is under a single roof on one floor, and there is easy access from one part to another. Consequently, there is little use of telephones or messengers, and very little use indeed of written communications. Senior management encourage communicating by talk rather than by writing, and conversation, or informal meeting, is the regular manner of interaction.

By the end of the five-week period 217 names had been mentioned on the recording forms. Of these, 31 were persons outside the organization, and another 8 were in other parts than the factory. The department's executive group met or communicated with under a tenth of the actual factory personnel—182 persons. Of these, 118 were outside and 64 within the department which at this time contained 128 persons.

Half the people in the department did not come into direct touch with their own executive group during the whole five-week period.[2] Hunt "saw"

2. In making this statement, there is this qualification: recorded episodes excluded those brief occasions when nothing much more than a greeting was exchanged; they had also to exclude those occasions when either the recorder was aware of somebody's actions without regarding them as significant enough to the episode of interaction to be worth recording, or he was seen or overheard by someone outside the group centrally involved in the episode.

24 persons in his department during the five weeks, including, of course, the other three recorders. Churchman saw 28, Wilson 39, and Butler 41 (these latter mentioning others not identified by name on 10 additional occasions). No individual recorder saw as many as a third of the department for long enough, or for an important enough reason, for the incident to be recorded.

Internalization Within the Staff Group

The department members in touch with the recorders were largely similar in all four cases. The executive team of four operated within a senior staff group of fourteen, which included the three men in the design team, and the planning and progress engineers working in the two lines, as well as the two foremen. To take episodes concerned with one individual only besides the recorder, Hunt recorded 252 "single-person" episodes with people within his department. Of these, 170 were with the other three members of the executive team, and another 64 were with the rest of the senior staff. On 18 occasions only did he meet members of his department outside this group by themselves, and of these, 6 were with the secretary-typist. Churchman talked with the other three members of the executive group alone on 113 occasions, with the other ten senior staff on 134 and the rest of the department on 90 occasions (including 40 with the charge hand of the experimental section and 21 with the secretary-typist). Wilson's figures were, respectively, 86, 179, and 41; and Butler's, 19, 184, and 38. By far the greater part of the intra-departmental business carried on by the executive group was conducted within the staff group of fourteen. Intra-departmental interactions outside this group form only a small percentage of the episodes involving single persons—ranging from 7 per cent in the case of Hunt to 15 per cent for Butler. Most of the 50 junior members of the department who did come in contact with one or other of the executives did so in company with others, and usually on the shop floor.

Internalization Within the Executive Group

We shall deal with time spent in interaction with other persons in the same way as with subject divisions, i.e., episodes in which a recorder spoke with two, three, or four people, etc., will be treated as equivalent to a half, a third, or a quarter, etc., of the total time spent with each individual. *Table 6* shows the pattern of verbal communication between members of the executive group and the various functional units of the department. For this purpose the department has been differentiated into four units: the executive group itself, consisting of the four recorders and their secretarial staff; the design group; planning engineers, progress staffs, and materials supply control; and production lines, including both foremen, charge hands and operatives. In the case of the two production engineers time spent with members of the other's assembly line (including planners and progress staff,

foremen, and operatives) has been subtracted from the last division and is shown separately.

Differentiation of function between departmental manager, deputy (and

TABLE 6 *INTERACTION WITHIN THE DEPARTMENT*

Unit	*Time per cent*			
	Hunt	*Churchman*	*Wilson*	*Butler**
Executives	36·5	40·0	24·5	9·2
Design	3·1	23·4	4·5	3·8
Planning, Progress and Materials	6·9	5·8	31·3	31·4
Production Lines	4·0	3·2	27·8	33·6
(Other's Production Line)			(0·7)	(2·0)
Total Interaction Time within the Department (hrs.)	79	88	156	176
As Percentage of all Interaction Time	50·4	72·4	88·8	80·0

* See p. 78

design chief) and production engineers appears more clearly even than in the earlier analysis according to subject division. But the outstanding fact is that executive groups itself now appears as of central importance, between a quarter and two-fifths of each person's time being devoted to interaction within the group.

Place

Of all the sections of the record, it seems that the place in which the episode occurred was indicated most reliably. There are no discrepancies in the matched records of the four recorders, and the difficulties which have arisen in the use of Butler's figures from his predilection for telescoping incidents away from his own desk are not present.

All four recorders spent between 84 per cent and 94 per cent of their time within the department. The much bigger differences in the proportions of time spent in interaction with members of the department and other sections of the factory (*Table 6*) thus resolve themselves into traffic of outside persons into the department—particularly the departmental manager's own office. He alone had a room of his own. Churchman had a desk in the main department office, and the production engineers shared a room on the other side of Hunt's office. All office staff were separated from the shop floor and the rest of the factory, and even the most casual observation of the production lines was only made possible by leaving the office and walking on to the

shop floor. Thus the department manager and his deputy lived fairly exclusively in the world of the office, spending only very short periods of time on the shop floor; in the case of the production engineers the proportion was much higher, but was still a fraction of the time spent in the office.

TABLE 7 *TIME SPENT IN DIFFERENT PLACES*

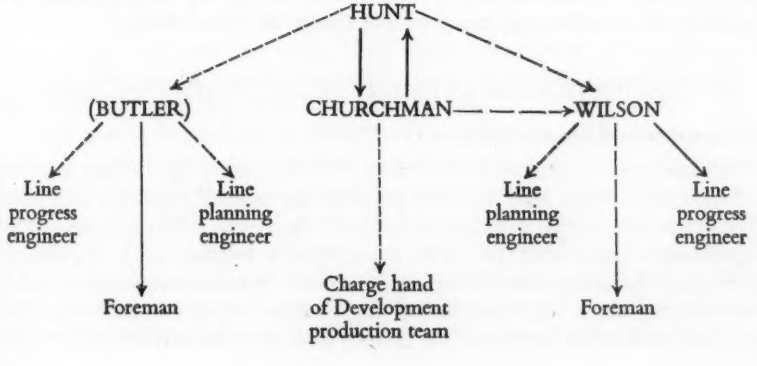
Place	*Time per cent*			
	Hunt	*Churchman*	*Wilson*	*Butler*
At own Desk	77·6	61·7	53·8	37·6
In Offices of Department	2·4	30·0	16·8	13·7
Department Shop Floor	3·9	2·2	20·1	32·5
Elsewhere in Factory	14·7	5·9	8·4	14·8
Outside Factory	1·4	0·0	0·9	1·4

The data may be regarded as a reflection in physical space of the process of the internalization of communication. Hunt and Churchman spend virtually no time on the shop floor. Despite their direct responsibility for the assembly lines Wilson and Butler are for the most part either at their desks or somewhere in the office.

Lateral Displacement

In terms of individuals, Hunt was most frequently in communication with Churchman and the converse was also true. The production engineer Wilson was most frequently in the company of his progress engineer. The diagram below represents the pattern of most frequent interaction (——→), of the next most frequent interaction (— — →), and of the third most frequent interaction (- - - - →).

FIGURE 2



The "vertical" links of communication stand out, but other aspects appear which are less familiar. The production engineers spent as much of their time in consultation with the heads of their planning and progress sections as with the foremen and production line supervisors. The implication is that planning and progress were far less matters of specialized technical control than ordinary observation often suggests. (By contrast, Churchman's interactions with his chief designer rank one-fifth in his order of frequency, and with other members of his design team he spent under an hour a week.) While the department was engaged for the most part in small lot production in which planning and progress functions would bulk large, the senior members of the planning and progress section had held their present posts for some years, and indeed had been longer in the department than either of the production engineers. There is, therefore, no reason to infer that these sections were not fully competent.

As might be expected from the above, "lateral" communication assumes rather larger proportions than is commonly supposed. The structure of the department, with a manager superordinate to the two production engineers had the effect of reducing status differences between the production engineers and the senior members of the planning, progress and design teams, who were all included in the same staff rank. The production engineers had been added primarily to reduce the amount of direct interaction between the manager and the production lines. Their interaction with the heads of the planning and progress sections, as with Churchman in his role as design chief, is to be regarded as "lateral" rather than "vertical" communication.

Within the limits of this study, it is not possible to do more than point to the lateral displacement of the main flow of vertical communication from the department's head down through the supervision of line production. In the case both of Hunt's preoccupation with communicating with his deputy, and in the surprisingly large amount of interaction between the production engineers and progress-planning staff, there appears to be a reluctance to sustain fully the vertical line of authority. This would help to account for the low rate of communication outside the staff group, and also for the tendency of the executive group to stay inside the office walls.

V. THE EXTRA-DEPARTMENTAL INTERACTION FIELD

Distinctiveness of External Milieu

Outside the department, interaction with the rest of the factory is more various. Eight units must be distinguished: the general manager and chief production executives and their secretariat; the research laboratories; office departments (sales, costs, accounts, sub-contracts, buying, etc.); inspection; personnel (including rate-fixing, etc.); service departments (maintenance, tool-making, etc.); other production departments engaged in earlier or later processes; and other sections of the factory with no routine or recurrent task.

Hunt, the departmental manager, spent virtually half his interaction time in company with people outside the department, the others less.

The categories of interactions by persons and subject are not necessarily identical, even when the same title (e.g. "personnel") is shared by both. The differences between the members of the executive group are displayed in *Table 8*, the manager spending most time with office departments, the deputy linking more with the research laboratories than with the rest of the factory put together (a consequence of his concern with design and new development), and the production engineer's extra-departmental centre of attention being inspection. Although the manager's contacts outside his department take up so much more of his time, they do not include many more people

TABLE 8 *INTERACTION OUTSIDE THE DEPARTMENT**

Unit	*Time per cent*			
	Hunt	*Churchman*	*Wilson*	*Butler* (*see p. 78*)
Senior Factory Executives	6·9	0·4	0·2	
Research and Development	8·0	16·4	2·2	
Office	17·3	5·3	2·5	
Inspection	1·7	2·9	3·1	
Personnel	10·8	2·3	0·7	
Services	0·8	0	0·7	
Earlier and Later Production	0·2	0·3	1·5	
Other	3·9	0	0·4	
Percentage of all Interaction	49·6	27·6	11·2	
	Mins.	*Mins.*	*Mins.*	
* Total Interaction Time outside Department	4,664	2,012	1,186	

than the production engineer's; Hunt's 4,664 minutes were spent with 74 persons, while Wilson's 1,186 minutes involved 54 persons, as did Churchman's 2,012 minutes. But while Hunt spent, on average, the equivalent of an hour a week with five separate individuals, Churchman spent as much as an hour with only one, and Wilson with none.

The size and distribution of interaction outside the department also, of course, bears a general relation to "administrative level"—e.g., to concern with matters of "policy" as against "productive effort". The manager tends to be involved in the consideration of financial and employment conditions, and of the firm's overall objectives, whereas the production engineer distributes his time among sections of the firm more directly related to current and proximate productive activity. In the case of the manager and his deputy, their scale of interaction with office and laboratories is of a complementary

nature. Members of this closely-knit departmental executive group inhabit, outside their contact with each other, very different milieux—their extra-departmental interaction fields are widely different.

TABLE 9 *INTERACTION ACCORDING TO RANK (WHOLE FACTORY)*

Recorder	*Time per cent*					
	Factory Executive	*Department Managers*	*Senior Staff*	*Junior Staff*	*Charge hands*	*Operatives*
Department Manager—Hunt	6	29	56	4	2	3
Senior Staff—Churchman	0	23	50	11	13	3
Senior Staff / Junior Staff } Wilson	0	12	22	46	13	7

The Influence of Status

There were in the factory six clearly defined ranks: (1) senior *Factory Executives*; (2) production engineers mostly in charge of departments, together with senior design engineers and senior sales and office staff (*Departmental Managers*); (3) senior planning engineers and junior design engineers

TABLE 10 *INITIATION OF INTERACTIONS BY DEPARTMENTAL MANAGER*

Interactions with	*Total Interactions Recorded*	*Per cent Initiated by Self*
Factory Executives	41	36
Departmental Managers	183	51
Senior Staff	402	58
Design, Planning Staff, etc., Foremen	154	62
Charge hands, Senior Clerical Staff, etc.	27	74
Operatives, typists, etc.	63	62

(*Senior Staff*); (4) foremen, draughtsmen, planning engineers, etc. (*Junior Staff*); (5) *charge hands*, clerical staff, typists, skilled tradesmen; (6) semi-skilled and unskilled *operatives*. Of the group of four executives, Hunt clearly ranked as a department manager, and Churchman as senior staff. The two assembly line production engineers occupied slightly ambiguous positions, below that of factory senior staff and yet above the rank below.

Table 9 shows the distribution of time spent in communicating with people in the whole factory, inside and outside the department, according to the status of the others involved. There are two pronounced tendencies, one downward, the other lateral.

As regards the downward tendency, while the proportion of interactions initiated by all four recorders with their peers is considerable (about half),

TABLE 11 *INTERACTION ACCORDING TO RANK (OUTSIDE THE DEPARTMENT)*

Recorder	*Time per cent*					
	Factory Executive	*Department Managers*	*Senior Staff*	*Junior Staff*	*Charge hands*	*Operatives*
Department Manager—Hunt	12	58	26	1	2	0
Senior Staff—Churchman	1	17	74	2	6	0
Senior Staff / Junior Staff } Wilson	1	11	40	16	27	5

TABLE 12 *INTERACTIONS WITH INDIVIDUALS (WEEKLY AVERAGES) ACCORDING TO THEIR RANK**

(a) *Inside the Department*

Recorder	*Department Manager (mins.)*	*Senior Staff (mins.)*	*Junior Staff (mins.)*	*Charge Hands (mins.)*	*Operatives (mins.)*
Department Manager—Hunt	—	161	15	7	7
Senior Staff—Churchman	270	108	18	34	6
Senior Staff / Junior Staff } Wilson	226	90	117	15	7

(b) *Outside the Department*

Recorder	*Senior Executive (mins.)*	*Department Managers (mins.)*	*Senior Staff (mins.)*	*Junior Staff (mins.)*	*Charge Hands (mins.)*	*Operatives (mins.)*
Department Manager—Hunt	23	24	9	1	2	0
Senior Staff—Churchman	2	27	60	2	3	0
Senior Staff / Junior Staff } Wilson	1	3	6	3	4	4

* Only those recorded as having been seen at least once by each recorder are included.

it decreases upwards and increases downwards. The figures for the departmental manager, are shown in *Table 10*, where his total contacts at each level may be seen in relation to the proportion initiated by himself.

When interactions outside the department are analysed separately, the

lateral tendencies in communication show up rather more clearly, the mode for each recorder being his own status group.

In *Table 12* the general pattern is displayed in terms of the average weekly time spent with individuals in each ranked category. This brings out the differential effect of functional position on the intra- and extra-departmental fields.

In terms of actual occasions, the departmental manager might, for example, arrive back from a meeting with a crop of decisions affecting production. He would call in the deputy and tell him what had happened; there would be some blowing off of steam, and a final injunction to the deputy to see Wilson about switching sections of his line on to Butler's work, and to see the materials men about the state of this or that stock. This sort of occasion would be considerably disruptive, were it not for the existence of prior knowledge of varying specificity at the deputy's level, and at successive levels below him, that something was "in the wind", production commitments being lightened to accommodate the new situation when it arose. The "vertical" system would be virtually unworkable without the considerable flow of information laterally.

VI. INTERACTION WITHIN THE EXECUTIVE GROUP

Matching Records

The structural features of the executive system in which the four recorders were placed made communication between the individual executive and his immediate superior or subordinate particularly important. This relationship not only carried the information routed from above the one and below the other, and instructions and decisions framed by the higher executives in response to information delivered by the lower; it formed the point of contact between groups—the circuits of equivalent status—to whose organic functioning the individuals contributed and to which they had to bring clear and appropriate information from other groups.

Some insight into this aspect of communication was afforded by comparing the records by the four individuals of interactions in which more than one of them had taken part, especially those between the departmental manager and the others. Since interruptions and, frequently, the different constitution of a group during a single recorded episode made mechanical analysis unreliable, the record forms themselves were extracted and matched. Where there was any doubt that two forms were not recording the same episode, or where one recorder had omitted it—as in the case of those lasting two or three minutes, which one of the production engineers tended to amalgamate with others—the episode was not used.

The Interdependence of Vertical and Lateral Communication

These results draw attention to the extent to which hierarchy of rank

determines the flow of communication, laterally as well as vertically. In this factory at least, it is difficult to conceive of the executive structure simply as a system existing to pass decisions and other information up and down a pyramidal hierarchy of management. It might better be conceived as a series

TABLE 13 *DISTRIBUTION OF TIME ACCORDING TO STATUS OF PERSONS PRESENT (SALES AND COSTS ONLY)*

Unit	*Time per cent*	
	Manager	*Deputy*
Factory Executives	4	0
Department Managers	38	24 (including 21 with Manager)
Senior Staff	47	50
Design, Planning, etc., Staff, Foremen	9	22
Charge Hands, Senior Clerical Staff, etc.	0	3
Operatives, Clerks, Typists	2	0

of circuits, some wide, some small, formed of groups of individuals of the same, or similar, status. Of course, information passes up and down, but should, perhaps, be seen as flowing through contacts between status circuits rather than along an administrative line. Comparison of Hunt's and Churchman's contacts concerned with Sales and Costs will help to make this point clearer.

TABLE 14 *CONCURRENCE OF INTERACTION RECORDS BETWEEN DEPARTMENTAL MANAGER AND SENIOR STAFF*

Pairs	*No. of Episodes Matched*	*Per cent Concurrent in Subject*	*Per cent Concurrent in Exchange of Information*	*No Lacking Concurrence*
Hunt—Churchman	108	65	59	+41 −3
Hunt—Wilson	74	62	59	+28 −2
Hunt—Butler	55	56	62	+15 −6

Discrepancies of Subject

In each case of matched records, the concurrence of the two as to subject division was noted, and also whether the giving of information, etc., was entered on the other form as received.

In examining for discrepancies in subject division, latitude was allowed for different interpretations not only in that all three production subject divisions were regarded as equivalent; "New Development and Research" could also be regarded as a production subject division. Discrepancies were

counted only when there was little room for doubt that in fact one recorder noted one topic discussed and the other another topic.

Do the figures on *Table 14* mean that pairs of competent executives in frequent contact with each other on most days over a period of years are completely at cross-purposes about the subject of discussion three or four times out of ten? What is suggested rather is that on many occasions, about one-third of all, the concerns of two individuals in the same matter were very different—one looking at a particular difficulty as concerned with, say, costs, and another perceiving the same thing as arising from the personnel involved. It is this predominant concern of the individual executive at a particular time when discussing a problem with another that may not be communicated, and which may result in apparently conflicting reports about the subject-matter. If Hunt, say, discussed with Wilson the number of extra hands needed when the new programme started, Hunt's concern would be with the production level. He would tend to tick "New Development and Research" and "Other Production Matters", whereas Wilson might put ticks against "New Development and Research" and "Personnel", since he would be more concerned with the engagements to be made. All these subjects would normally have figured in their conversation and both should have recorded all three. So straightforward a case would almost certainly have been counted as concurrence. In more complex cases, however, the intention of the other's concern was either not expressed or not comprehended.

In single instances, the consequences of this lack of concurrence on the work of the department would be negligible. Over a period of time, however, they might well account for a sizeable bias in the control of the manager over productive activity. If—as was the case—"New Development and Research" was discussed frequently while a new production programme was being planned, Wilson's concern with Personnel as the matter with which he anticipated most trouble might obscure to an ever greater extent the importance which Hunt, on his side, thought he was attaching to the installation of machines, or to layout, or materials. This could lead only too easily to machines not being ready, or to some other hold-up of the sort so often encountered at the outset of new programmes. When lack of concurrence as regards subject is a persistent aspect of on-going communication, it may eventually produce a serious deflection of managerial control from its appropriate objectives.

Status Protection

The same record forms were also examined for conflicting accounts of the exchange of information and advice as against decisions and instructions. Whenever the department manager noted that he had given an instruction or a decision, while the other had recorded merely advice or information, the lack of concurrence was noted by +. The reverse situation, of informa-

tion or advice being received as instructions or decisions was noted as —. Major discrepancies in such exchanges occurred in about two cases out of every five. As column 4 of *Table 14* shows, the discrepancies had mostly the same bias: when the manager records giving instructions or decisions, the other records receiving information or advice; or, he records information only when the manager notes giving information, advice, and decisions or instructions. Only rarely did the deputy or the production engineers record receiving decisions or instructions when the manager noted giving information or advice. Hunt noted giving instructions or decisions in 165 of the 237 episodes; the others recorded receiving instructions or decisions on only 84 of these occasions. Half the time, what the manager thought he was giving as instructions or decisions was being treated as information or advice.

This result may be regarded as an aspect of status protection. The tendency for the three senior staff to treat instructions from the head of the department as information or advice amounts to a rejection of the subordination implied in being instructed to take this or that action. Their status as executives—in an elastic status system, moreover, in which promotion is part of a normal career—appears to act as a force compelling them to treat their situation as one in which they could proceed for the most part not in response to instructions from a superior but as a result of their own judgments arrived at after consulting and obtaining information from the department's manager, as well as from other sources.

The element of status protection, in which the authority concomitant of communication downwards is tacitly rejected, may throw some light on the conception earlier advanced of the functioning of lateral communication as an integral feature of the organization. In its turn, the latter concept may indicate a means whereby the subordinate is enabled to protect his view of his own status. In dealing with individuals at a lower level in the system, a departmental manager will be conscious not merely of their subordinate position, but also of the fact that he provides their main link with the circuit in which he himself operates, and where "decisions are taken". They, on their side, while they may be conscious of their subordinate position, will also be aware of the "circuits" in which they too operate. These include people of their own status similar to those included in the circuit appropriate to their manager. As far as they are concerned, "decisions are taken" at their level, too, and in apposition with colleagues over a fairly wide range of positions from all of whom information relevant to action may be derived. It seems, therefore, reasonable that what appears "instruction" to the manager who delivers it, may well be looked on as "information" by the recipient. If this account of what happens in the organizational structure is true, the customary view—among top management—of the organization as a system of vertical communication is quite inadequate, apart from the individual case of the chief person in a concern or within a department, who has nobody to communicate with apart from subordinates.

SUMMARY AND CONCLUSIONS

1. The study of executive activity and communication still lacks adequate answers to such first questions as on what and with whom executives spend their time.

2. An attempt was made to collect such material by using a self-recording technique. A group of four departmental executives in an engineering factory made systematic records of their activities and interactions over a five-week period according to ten subject divisions.

3. The group overestimated the time it spent on production and underestimated the time it spent on personnel, indicating an unawareness of the extent of its absorption in internal problems of "human relationships".

4. While each person's estimate of own time spent on production was closer to actual findings, most of the group, particularly the two senior members, thought that production absorbed most of the time of the others.

5. There were wide differences in the distribution of activities for individuals occupying the same work-role, pointing to hidden forces in apparently similar situations.

6. There was a restriction in the range of contact within the department, no member of the executive group seeing more than a third of the total personnel, half of whom had no recorded contact with any of the four executives over the five-week period.

7. Most of the interaction of the executives inside the department was internalized within a staff group of fourteen; and two-fifths of it was further internalized within the executive group itself. Moreover, the executives tended to "stay inside" physically as well as socially—i.e., inside the walls of the office.

8. As much time was spent with those with whom the executives had staff as with those with whom they had line relationships—a lateral displacement of communication suggesting difficulties over the authority component in the direct relationship of superior and subordinate.

9. While, outside the department, members of the executive group developed distinctive external milieux, generally related to level and function, status strongly influenced the direction of communication throughout the organization.

10. There was a marked tendency for interaction to be initiated downwards rather than upwards. The even balance at the same status level served to maintain communication circuits among groups of equivalent status which crossed departmental boundaries; communication "leaked" from level to level through contact individuals (not necessarily in the direct executive line concerned) and the ground at a lower level was prepared for likely action.

11. The lateral system, therefore, while its importance was largely owing to displacement of line communication and of status determinants of interaction, was yet essential to the proper functioning of the vertical system.

12. Within the executive group itself, discrepancies in referring interaction episodes to subject divisions occurred in a third of the cases—according to how the situation was perceived in terms of the role of the participant. Through time, this distortion might lead to a "dislocation" of managerial control over a production activity.

13. Discrepancies also occur regularly in the perception by subordinates of communication as conveying information or advice in contradistinction to what superiors intended as instructions or decisions. The operation of a mechanism of status protection may be inferred.

14. It is suggested that status protection—which would tend to reinforce distortion of content in terms of role—lateral displacement and internalization are interrelated phenomena. The stereotype of communication in an executive chain as passing up and down a vertical channel is an oversimplified view which denies the existence of a complementary lateral system rendered necessary by problems and difficulties internal to the group—which is likely to have less of its time and energy than it supposes available for carrying out its external task.

BIOGRAPHICAL NOTE

Tom Burns. Graduated at Bristol University. After the war he joined the West Midland Group and Bournville Village Trust, working as Research Assistant. Since 1949 he has been Research Lecturer in the Social Sciences Research Centre, University of Edinburgh.

BOOK REVIEWS

Group Dynamics: Research and Theory. Dorwin Cartwright and Alvin Zander. Evanston, Row, Peterson, 1953. pp. 642. $6.00., London, Tavistock Publications Ltd., 1954.

Understanding of psychological phenomena that arise as the direct product of human interaction represents one of the most recent achievements of scientific method. *Group Dynamics* examines this achievement from three points of view. First the lines along which progress in understanding group behavior has been developing are identified and employed as the basis for organizing the book into six sections. Within each section numerous examples of the types of research that are producing verifiable principles of social conduct are given. Finally, in the various sections, fundamental issues with which future research in the human relations area will be concerned are brought into focus. The product is an important social psychology text.

Group Dynamics is written in an unusual fashion that gives it the breadth of content commonly found in a collection of original papers combined with the integration of concepts characteristic of a text by a single author. This synthesis is achieved through a set of orienting chapters prepared specifically to introduce the six sections. Following each orienting chapter are a number of original studies. By using this method of presentation the reader gets an overview of the important issues in each problem area along with the richness of operational detail usually found only in the report of original research.

The content can be characterized in several ways. The longest and best section, making up one-fourth of the total, is concerned with an analysis of group standards, group pressures, and group decisions. Another presents a description of different approaches to the study of group behavior. Others deal with the structural properties of groups, the phenomena of leadership, and group goals, and group locomotion. The shortest section is based on three investigations dealing with the concept of group cohesiveness. In selecting material for inclusion, laboratory-type experiments have been preferred over field studies or naturalistic observations.

Approximately eighty per cent of the contributed papers have been published since 1950. About thirty per cent of the originals appeared in *Human Relations*, twenty per cent in the *Journal of Abnormal and Social Psychology*, with the remaining fifty per cent coming from a wide range of journals and books, including about ten per cent that were selected from sociological sources. One-half the contributing authors could be described as influenced in some degree by Lewinian concept formation.

The reader may find the title misleading since the term "group dynamics" has often been used to identify the approach to social research typified by the Lewinian group. Since this approach has been acclaimed for selecting research problems in terms of their value for testing systematic theory, a similar use might be expected in this book. As employed here the term has a wider meaning, however, referring to empirical work in the area of group phenomena, without particular regard for the presence of formal theory to direct the development of techniques of measurement, or the rational selection and manipulation of variables. The use of "group dynamics" as the title of a book presenting

group research ranging from rather strict adherence to the view that theory should serve as the basis for selecting problems for investigation to the approach that seeks to establish facts and then to find a theory to explain them, results in a considerable loosening from its original meaning.

The book fills an important gap between the study of individual behavior and the analysis of institutional structures. It should prove useful as a text in advanced undergraduate or early graduate social science courses, as a reference book for the consultant or field worker whose speciality is located in an allied discipline, or as an exercise in thinking about social phenomena from an experimental viewpoint for the informed layman.

Robert R. Blake.

The Economic Impact on Under-Developed Societies: Essays on International Investment and Social Change. S. Herbert Frankel. Oxford, Basil Blackwell. pp. 189. 15*s*.

"The great psychological stresses which are reflected in the racial and class conflicts of our time are frequently symptoms of . . . lack of continuous adjustment between old and newly emerging structures of activity. Where the adjustment is not mutual it leads to unfreedom, with its accompanying feelings of frustration in the new and corresponding feelings of guilt in the old society. This psychological *malaise* arrests the unfolding of human capacity. It leads finally to attempts to solve structural disharmonies by an appeal to force." Thus writes Professor Frankel in the first of the nine collected papers comprising this volume. The first five are concerned with the general theoretical and symbolic implications of the clash of new and old economic systems, while the last four illustrate these general themes in terms of what is happening in Africa. As will be seen from the above quotation, Professor Frankel approaches his subject with great wisdom and deep humanity. Indeed it is almost inspiring to realize how far an economist, approaching the study of human behaviour from his own particular angle, is able not only to confirm but to widen and deepen the insights of the psychologist. Professor Frankel is concerned with the conflict of techniques and values, and with the repercussion produced by these clashes in the lives and minds of men. In a sense, he is only doing on a larger scale the type of study carried out by the psychologist dealing with the effects, say, of wartime evacuation upon children. At bottom, most human problems have to do with our attempts to cope with incompatibilities, to reconcile the opposing and the inconsistent in ourselves and in our environment. The psychologist is concerned with the microcosm, Professor Frankel with the macrocosm. But what goes on within us affects our behaviour and what goes on without us affects what happens within. It is precisely here that Professor Frankel makes a massive contribution towards the integration of social science, because he is not content to see the social and economic consequences of technological impacts, but follows them through into the ebb and flow of value and belief. And here again he can increase our understanding, for the size of his canvas allows him to draw general lessons. The quality of these lessons, and of the book as a whole, is best illustrated by concluding the review, as began, with a quotation.

"Western Civilization has paid dearly with the blood and tears of millions because of the facile belief that civilization is not a process of trial and error, of continuous adaptation, of sympathy, and of slowly evolving mutual understanding, but merely a question of abstractions: of liquidating those who being bad, or rich, or different, must be swept away to make 'civilization' possible. Time and again those who thought themselves the 'good', the 'chosen', the '*élite*', or, as divinely appointed emperors or tyrants, made the same but obverse mistake of regarding civilization as dependent only on them, or on their abstract concepts of perfection: oblivious to the changing exigencies of time and circumstance, regarding their estate and function as unalterable as the laws of the Medes

and Persians; despising both the opportunities for wider co-operation which the time enjoined, and the peoples whose power of co-operation it was necessary to seek, to cherish and to develop."

A. C. T. W. Curle.

Science and the Social Order. Bernard Barber. Glencoe, Ill., The Free Press. pp. 288. $4.50.

The general role, "scientist", has very strong pressures upon it which serve as guides to those who engage in scientific endeavor. For example, a scientist readily abides by such values as rationality, emotional neutrality, commonality among scientists of all nations, freedom to explore any phenomena, non-secrecy of findings, and so on. These are often lauded as important aspects of the scientific attitude. But other influences, stemming from the nature of the society in which he works, determine the nature of the scientist's behavior as well. This volume describes the nature of such influences in a highly stimulating and informative manner. Any scientist, regardless of his discipline, will finish this volume with a new and broader understanding of his position and role.

The object of the book is "to get a better understanding of science by applying to it the kind of sociological analysis that has proved fruitful when directed to many other social activities". The author, therefore, treats science as an activity having determinant connections with the different parts of society, such as political authority, the occupational system, class stratification, and cultural ideals. He begins with a description of science and follows this with a discussion of the social influences in the evolution of science. Here he skilfully demonstrates the presence of an historical evolvement of knowledge and procedures, and the constant presence of certain forces which, though varying in appearance, are consistent in their meaning. The nature of a particular society, in short, makes it more or less likely that the scientist's values will be accepted and that the development of new scientific knowledge will go forward. By the use of both quantitative data and revealing anecdotes he shows how authoritarian social systems stunt the growth of scientific endeavor by fostering a cult of non-rationality. By a close examination of the way that science is organized in industry, government, and universities he develops a convincing argument that the support for science can be helpful or hindering in many ways. And by a careful scrutiny of the values upheld by scientists and by a description of the appreciation of these by the layman, the author shows that scientific activity in turn has had an important influence on the social milieu. A reader comes to feel that this circular-causal relationship will be healthier all around when the findings of social science are conceptualized in a way that makes them more practically useful.

For the present reviewer the most provocative parts of the volume were those in which he describes the dominating values of the highly moral activity known as science. The discussion describing the similarities in various fields of science, whether it be in their professional groupings, forms of communication via journals and conferences, problems of basic versus applied science, training of researchers, financing of research, social acceptance of results, and so on are highly stimulating, and provide an awareness that many problems concerning scientific activity are worthy of joint attention from persons in various fields.

The author's style is most readable and his publishers have a handsomely designed format. The "footnotes" are all gathered in the last few pages, which is most inconvenient; but this is a minor fault in contrast to the otherwise well-presented material in this worthwhile book.

Alvin Zander.

Principles of Human Relations. Norman R. F. Maier. New York, John Wiley & Sons, Inc., 1952. 474 pp. $6.00.

Principles of Human Relations is a provocative and useful account of many of the applications of group methods to human relations problems in industry. The author

draws heavily upon his long and varied background as a consultant in industry to provide a highly readable account of methods he and his associates have found successful in changing attitudes, overcoming resistance, improving morale, and instituting the democratic method in industry.

The industrial group leader will find this a rich manual of group techniques, discussion methods, role playing in small and large groups, and methods of upgrading the quality of group decisions. Some of the methods will be familiar to the industrial trainer, several are given highly inventive twists by Maier. All are described in such a manner that a foreman, trainer, or management representative with some general training could handle the method adequately. Particularly strong chapters are those on discussion methods, role playing in large groups—an area where Maier has been particularly imaginative—and group decision procedures. Perhaps least adequate are the chapter on evaluation and the two last chapters, further mentioned below.

The author persuasively argues that the basic induction point in behavior change is the modification of attitude. Much of the content of the book could be classified as methods of inducing attitude change. It is clear that he feels that permissive, democratic attitudes are basic to adequate interpersonal relationships in industry. While his methods will be far too highly structured and "autocratic" for some tastes, they will be far too nondirective and "democratic" for those trained in the use of visual aids, slick demonstrations, and the general persuasion techniques.

The reader expecting from the title a set of "principles" may be disappointed. This is a practical book—and group oriented. A less felicitous but more descriptive title might have been "some group methods used in human relations training in industry". The two last chapters on methods of "dealing with individuals", including a somewhat appendant chapter on nondirective counseling, are certainly far less satisfyingly or informatively written than the material on group methods.

The book is a great advance on the patchwork and rule-of-thumb presentation of many books in industrial psychology. Maier cites much adequate experimental and other empirical evidence for his conclusions. His statements are frequently documented by case study examples, usually from his own experiences in industry. While his too ready generalizing will not suit all academic tastes, he has certainly attempted to stay with the evidence. Other weaknesses of the book—such as his somewhat dogmatic, certainly less than "non-directive" writing style, and the disconcertingly hurried organization of the book —are far overbalanced by its significant contributions.

The book will find wide acceptance. It has already received much favorable comment. The reviewer has had occasion to speak with many industrial users throughout the country, all of whom consistently cited the great usefulness of the book. It is a book that unquestionably should be read by anyone concerned with human relations in industry. It is a significant contribution to the growing literature in this field.

Jack R. Gibb.

Science and Human Behavior. B. F. Skinner. New York, Macmillan, 1953. pp. 461. $4.00.

The author of this volume has been known in the past primarily for his studies in the field of learning and for his emphasis on a rigorous scientific approach to the study of such problems. Here he attempts to draw upon his past experience in order to consider the study of complex human behavior from the point of view of a theory of learning. The view of learning followed is based largely upon "The Law of Effect": that behavior is stamped in when followed by certain reinforcing consequences. In Skinner's terminology this law is referred to as "operant conditioning" and may be described as the conditions for changing the probability that a particular response will occur. In an early part of the book this theory of learning is described in considerable detail. In later sections

the theory is used to analyze more complex aspects of individual behavior; the behavior of people in groups; and control aspects of complex social agencies.

Some psychologists assume that the learning which takes place at a given time is a function not only of the reinforcement conditions but also of the orientation of the subject to the learning situation, and of the particular interpretation made of the experience. This question of "meaning" is one that must be handled in any learning theory and the manner with which it is handled is of utmost consequence for any generalization to social behavior. Certain psychologists handle the problem by legislating it out of existence on either epistemological or methodological grounds. The former consideration would be concerned with the dangers of "mind" and "teleology" while the latter consideration would concentrate on the importance of having a suitable operational definition for any variable introduced into a theoretical system. Skinner appears to handle this problem reasonably well. He insists upon a definition in terms of observable behavior but appears to be willing to introduce "meaning" in terms of the past history of reinforcements that have occurred. In this fashion he can introduce the possibility of generalized learning and of the reinforcement not only of simple behaviors but also of complex emotional states. One could wish, however, that he had discussed more fully the way in which such generalizations develop and the rules for describing summation of a history of reinforcements. One suspects that this theory will be of limited predictive value until it is known under what circumstances the learning is in terms of generalizations, and until one also knows how to summate a series of past reinforcements so as to estimate their influence in a presently existing learning situation.

Perhaps it will be of value to elaborate on this problem of predictability. Skinner points out that some behaviors cannot be brought under control of operant reinforcement, i.e., cannot be learned. For what sorts of behaviors is this true and under what conditions? It is stated that "Docking a man for time-absent guarantees his presence each day by establishing a time-card entry as a conditioned reinforcer." In terms of empirical experience one can demonstrate that such a response is true only sometimes. On other occasions, retaliatory measures occur in the form of slow-downs or even strikes. How does one predict which type of response will take place?

In the final sections of the book there are discussed certain social matters such as psychotherapy, economic control of behavior, education, etc. For this reviewer the discussion of these problems was unfortunately brief and over-simplified. For example, in the discussion of wage incentives it was implied that wages in an absolute sense reinforce the behavior of an individual. Yet there are strong empirical reasons for believing that reactions to incentives are very much a function of the existing group standards about a "fair day's work". In addition, an individual's wage is frequently interpreted by him not only in financial terms but also as a status symbol with reference to other employees. Grievances are just as likely to occur over status aspects of a wage as they are over the financial aspects involved. It is implied in this book that the major incentives are financial in nature. Yet in recent years, emphasis has been gradually transferred to the importance of non-financial, group supported incentives, to the satisfactions that can accrue from work activities, and particularly to the satisfactions derived from participation in certain kinds of group efforts directed towards the achievement of a common objective. Similar difficulties appear to exist elsewhere in the discussion of social phenomena and social institutions.

It is clear that the author of this volume set for himself a difficult and praiseworthy task. One cannot help but be sympathetic with the attempt. Yet this reviewer could not help but wish that Skinner knew as much about people as he so obviously knows about pigeons.

Gilbert K. Krulee.

Satisfaction in the White-Collar Job. Nancy C. Morse. Ann Arbor, Michigan, University of Michigan, Institute for Social Research, 1953. pp. 235. $3.50.

This volume contains an investigation of morale in a large scale business organization. It gives an account of one of the studies that have been made within the Human Relations Program at the Institute for Social Research. The author of this study has been able to compare and make use of theories, methods, and findings drawn from parallel studies in companies with different structures. The general theories about morale factors and morale determinants seem to be of greatest importance for future research in this area. Many of the findings call for a critical re-evaluation of the present employee-opinion studies, and are of utmost interest to all those working with human relation problems.

Morale is defined in terms of the satisfaction achieved through being in a social organization, and the difference between satisfaction and the motivation to produce is stressed. The amount of satisfaction an employee perceives is conceived as an increasing function of how much his needs are fulfilled by being in a particular situation, and a decreasing function of how much his needs remain unfulfilled. Through this definition interest is focused on the individual's needs or aspiration level, a factor which much too often has been neglected in earlier research. Motivation to produce is conceived as a function of such factors as the strength of 1. those needs for which productivity is a path, 2. the probability that productivity will yield some reduction of tensions coming from these needs, 3. the amount of productivity required for a given unit of tension reduction, 4. the strength of the needs which cannot be satisfied through the behavior of producing, and 5. the probability of the tension-reduction of these needs. These theoretical considerations make it possible to explain certain relationships which could not be explained earlier by more crude theories; e.g., the statistical independence between productivity and satisfaction.

The population of the study was a small proportion of white-collar employees in a large company, and the sample was selected from high, medium, and low productivity clerical work groups, containing 742 employees and 73 supervisors. The data were gathered through interviews.

Satisfaction is broken down into specific satisfaction variables, such as satisfaction with doing the actual content of the work (intrinsic job satisfaction), satisfaction with being in the work group (pride in group performance), satisfaction with working in the company (company involvement), and satisfaction with pay and job status. The choice of these variables is partly dependent on content points of view, partly on intercorrelation analysis. Crude indices for items are used as measures.

With the exception of pride-in-group-performance, there is a general correlation between the satisfaction variables. The influence of a halo effect is here evident. The lack of correlation between status and salary on the one hand, and satisfaction of different kinds on the other, indicates the importance of the level of aspiration. Interesting relationships are hypothesized in the analysis of the curvilinear correlation between age, number of years employed in the company, and satisfaction. The change with age in the nature and levels of aspirations are stressed here. An interesting analysis is devoted to the complicated relationship between the amount of satisfaction of different kinds and the extent of either general or close supervision, where certain conditioning factors are taken into account, such as the supervisor's amount of freedom and power and the aspiration level of the employees.

Theories and findings are stated in a clear-cut and comprehensible way, and research conditions and methods are extensively accounted for. This makes it possible to see clearly both the benefits and the limitations. To conclude the review of this very impressive contribution certain critical comments might be made.

It is obvious that many of the interesting theories have the character of *fact postum* hypotheses developed partly because certain initially expected correlations did not occur.

This decreases the confirmative value of given statistical evidence in relation to the stated theories. Another consequence of this is that several of the hypothesized variables are not measured; e.g., the need or aspiration level. There is no satisfactory discussion of how the psychological determinants of satisfaction and motivation should be operationally defined. The examplified measurements of environmental return, need reduction, and initial tension level seem rather dubious.

The general theories have been given a mathematical form that involves rather unnecessary and unlikely assumptions about the relationship between the variables, assumptions that the author probably has not intended and that cannot be said to be corroborated by given evidence. The technique of using indices calculated by adding scores for items which are selected *a priori* and which have rather low intercorrelations is a technique that is not quite convincing. The analysis is sometimes incomplete. In discussing productivity no distinction is made between the employees' work input, which is closely related to the motivation to produce, and the work output, or the productivity in the more technical sense. This latter variable is obviously dependent not only on the motivation to produce, but also on a set of technical and organizational variables, and should be looked upon as an interactional effect that very seldom is a linear function of the average motivation among the individuals.

Edmund F. S. T. Dahlström.

Union Solidarity: The Internal Cohesion of a Labor Union. Arnold M. Rose. Minneapolis, The University of Minnesota Press, 1952. 209 pp. $3.00.

This study raises three questions which are of general concern to most persons interested in the labor movement: 1. For what reasons can workers feel a sense of solidarity with their union? 2. To what extent can union leaders and union experiences educate the rank and file to have attitudes considered by the leaders essential for successful trade unionism? 3. To what extent can a union buck a strong cultural pattern of which the members are a part when this opposition is deemed necessary for union solidarity and successful trade unionism?

Information bearing on these questions was obtained from a sample of the membership of Local 688 of the Teamsters Union. Members of this relatively large local work in a number of plants in St. Louis and are engaged for the most part in small manufacture and warehousing. Their attitudes toward such matters as union officer performance, democracy in the local, minority groups in and outside the union situation, etc. are considered, together with membership participation in and loyalty to the union.

While the data reveal little in the way of novel information, Rose supplies findings which may be of interest particularly to students of labor unions in different societies. For example, Rose furnishes additional support for the Survey Research Center's finding that loyalty to the union and loyalty to the company are compatible, at least in some circumstances. Some of Rose's other findings may suggest further investigation. He found, for example, that workers of the local tended to see control of the union at levels of the organization where they favored control. Convenient summaries of the findings are included, as is the complete interview schedule (largely of the fixed-alternative type). Rose also pays greater attention to sampling and other methodological problems than is usual in this field. With the paucity of systematically obtained data in this area, there is some value in having put this material on record.

However, the social scientist reader may not be satisfied with the treatment of the findings in relation to the major theme of the study, namely solidarity. Difficulty centers around two major and related problem areas. First, no single and explicit definition of solidarity is presented. An implied definition seems to concern "some feeling of a need for combining forces". Judging from the scattered questions used to measure the variable, this conceptual intent is not consistently met. Further, factors such as agreement with the

policies of the leadership (and also participatory behaviors) are used sometimes as measures of solidarity, while in other cases they are used as determinants or consequences of solidarity.

There are, secondly, further problems in that concepts on the same level as solidarity are not differentiated, so that relations between these may be stated and explicit rationales developed for predictive guidance. Conceptual assimilation goes so far that everything in this study may be regarded as an index or measure of solidarity. Durkheim, in his *Suicide*, presented an early but more differentiated scheme to illuminate such data as Rose presents; and more recent researchers such as Festinger have presented structurally similar schemes, conceptually enriched to the point of being at least partially amenable for use in stating theoretical propositions and making derivations suitable for such material. Rose does not make use of distinctions such as Festinger's, nor of "mechanisms" such as Durkheim's. Whatever one's theoretical persuasions, in a study which rests so heavily on one theme such as solidarity, more concern for the general problems of conceptual clarity and differentiation would seem advisable.

A summary evaluation of this book might well be that it presents some useful information, competently obtained, but that conceptual deficiencies seriously reduce its contribution to sociological and social psychological thinking.

Irwin W. Goffman.

Education and Society: An Introduction to the Sociology of Education. A. K. C. Ottaway. London, Routledge & Kegan Paul. pp. 168. 18*s*.

This is the first book to be written by an Englishman on an important and surprisingly neglected area of study. To the trained social scientist it will not be of particular value, since it is mainly written for teachers, and for this reason a large part is devoted to elaborating various theories, such as the culture concept, which are well known to the specialist. But its significance lies in the subject matter. The ten years of formal education, through which every child in the country must pass, provide the only certain opportunity for individuals to be brought into contact with the results of mankind's collective wisdom and experience. We can do little—and rightly—about the influences of the home. We can do even less, in any organized fashion, to affect the world into which the school-leaver passes; but during the school period something can be done—and it is all too often the wrong thing. Of course, an enormous amount of profound and conscientious work has been done on educational topics, but it is pitiably absurd that our scientific knowledge of the upbringing of remote savages is often greater than our understanding of what is happening under our very eyes. A book like this should do much in fact, to turn our eyes in the right direction.

A. C. T. W. Curle.

BOOKS RECEIVED

CABOT, HUGH, and KAHL, JOSEPH. *Human Relations. I. Concepts.* Cambridge, Mass., Harvard University Press (London: Geoffrey Cumberlege). 329 pp. 30*s.*

CABOT, HUGH, and KAHL, JOSEPH. *Human Relations. II. Cases.* Cambridge, Mass., Harvard University Press (London: Geoffrey Cumberlege). 273 pp. $4.75.

DOLLARD, J., AULD, F. (Jnr.), and WHITE, ALICE M. *Steps in Psychotherapy.* New York, The Macmillan Company. 215 pp. $3.50.

Eastern and Western World: Selected Readings. The Hague, Holland. W. van Hoeve. 181 pp. 15*s.*

ELDRIDGE, SEBA. *The Dynamics of Social Action.* Washington, D.C., The Public Affairs Press. 115 pp. $2.50.

FIELD, MINNA. *Patients are People.* New York, Columbia University Press. 238 pp. 24*s.*

FRANKEL, S. HERBERT. *The Economic Impact on Underdeveloped Societies.* Oxford, Basil Blackwell. 179 pp. 15*s.*

HATHAWAY, S. R. and MONACHESI, ELIO D. *Juvenile Delinquency with the MMPI.* Minneapolis, University of Minnesota Press (London: Geoffrey Cumberlege). 153 pp. 28*s.*

HILGARD, ERNEST R., KUBIE, LAWRENCE S., and PUMPIAN-MINDLIN, E. *Psychoanalysis as a Science.* Stanford, Stanford University Press. 174 pp. $4.25 (35*s.*).

LINDEMANN, EDUARD C. *The Philosophy of Social Work.* Washington, D.C., Public Affairs Press. 143 pp. $3.25.

MANNHEIM, KARL. *Essays on Sociology and Social Psychology.* London, Routledge and Kegan Paul, Ltd. 310 pp. 25*s.*

MORENO, J. L. (New Edition). *Who Shall Survive?* Boston, Mass., Beacon House Inc. 761 pp. $10.

NEUMEYER, N. *Social Problems and the Changing Society.* London, Macmillan & Co. 463 pp. 32*s.*

NISBET, JOHN D. *Family Environment: A direct effect of Family Size on Intelligence.* London, Cassell & Co., Ltd. 52 pp. 3*s.* 6*d.*

NOTCUTT, BERNARD. *The Psychology of Personality.* London, Methuen. 235 pp. 21*s.*

OTTAWAY, A. K. C. *Education and Society.* London, Routledge and Kegan Paul, Ltd. 182 pp. 18*s.*

POWDERMAKER, FLORENCE, and FRANK, L. *Group Psychotherapy.* Cambridge, Mass., Harvard University Press (London: Geoffrey Cumberlege). 591 pp. 42*s.*

RICHARDS, E. R. *The Shoemenders.* London, Allen & Unwin. 91 pp. 9*s.* 6*d.*

RUOPP, PHILLIPS (Editor). *Approaches to Community Development.* The Hague, W. van Hoeve. 347 pp. £1.

Small Towns of Natal. Natal, University of Natal Press. 113 pp. 17*s.* 6*d.*

SPINLEY, B. M. *The Deprived and the Privileged.* London, Routledge and Kegan Paul, Ltd. 204 pp. 18*s.*

The Dunn Reserve—Zululand. Natal, University of Natal Press. 69 pp. 15*s.*

TORPEY, W. G. *Public Personnel Management.* London, Macmillan & Co. 427 pp. 37*s.* 6*d.*

WHITING, J. W. M., and CHILD, I. L. *Child Training and Personality.* New Haven, Yale University Press (London: Geoffrey Cumberlege). 353 pp. 32*s.* 6*d.*

WOLFFHEIM, NELLIE. *Psychology in the Nursery School.* London, Gerald Duckworth & Co. 143 pp. 9*s.*

List of Books Received by the American Editorial Committee up to January 1954

BARBER, BERNARD. *Science and the Social Order*. Glencoe, Illinois, The Free Press. 288 pp. $4.50.

BENDIX, R., and LIPSET, S. M. *Class, Status, and Power*. Glencoe, Illinois, The Free Press. 725 pp. $7.50.

BLUM, F. H. *Toward a Democratic Work Process*. New York, Harper & Bros. 229 pp. $3.50.

BLUM, GERALD S. *Psychoanalytic Theories of Personality*. New York, McGraw-Hill. 219 pp. $3.75.

CANTOR, NATHANIEL. *The Teaching-Learning Process*. New York, Dryden Press. 350 pp. $2.90.

CARTWRIGHT, D., and ZANDER, A. *Group Dynamics: Research and Theory*. Evanston, Illinois, Row, Peterson. 642 pp. $6.95.

DANIEL, R. S., and LOUTTIT, C. M. *Professional Problems in Psychology*. New York, Prentice-Hall.

FESTINGER, L., and KATZ, D. (Eds.). *Research Methods in the Behavior Sciences*. New York, Dryden Press. 660 pp. $5.90.

FIRTH, R. *Elements of Social Organization*. New York, Philosophical Library. 257 pp. $5.57.

HAMILTON, D. *Newtonian Classicism and Darwinian Institutionalism*. Albuquerque, New Mexico, The University of New Mexico Press. 138 pp. $1.00.

JONES, MAXWELL, *et al. The Therapeutic Community*. New York, Basic Books. 186 pp. $3.50.

LERNER, D., and LASSWELL, H. D. (Eds.). *The Policy Sciences*. Stanford, California, Stanford University Press. 344 pp. $7.50.

LIBO, L. M. *Measuring Group Cohesiveness*. Ann Arbor, Michigan, Research Center for Group Dynamics. 111 pp. $2.00.

LOOMIS, C. P., *et al. Rural Social Systems and Adult Education*. East Lansing, Michigan, Michigan State College Press. 392 pp. $5.00.

MACGREGOR, F. C., *et al. Facial Deformities and Plastic Surgery*. Springfield, Illinois, Charles C. Thomas. 230 pp. $5.75.

MAIER, NORMAN R. F. *Principles of Human Relations*. New York, John Wiley & Sons, Inc. 474 pp. $6.00.

MILLER, PAUL A. *Community Health Action*. East Lansing, Michigan, Michigan State College Press. 192 pp. $3.00.

MORSE, NANCY C. *Satisfactions in the White-Collar Job*. Ann Arbor, Michigan, University of Michigan, Institute for Social Research. 235 pp. $3.50.

MURPHY, GARDNER. *In the Minds of Men*. New York, Basic Books, Inc. 306 pp. $4.50.

PARSONS, T., and SHILS, E. A. (Eds.). *Towards a General Theory of Action*. Cambridge, Massachusetts, Harvard University Press. 506 pp. $7.50.

PARSONS, T. *The Social System*. Glencoe, Illinois, The Free Press. 575 pp. $6.00.

POWDERMAKER, F. B., and FRANK, J. D. *Group Psychotherapy*. Cambridge, Massachusetts, Harvard University Press. 615 pp. $6.50.

ROSE, ARNOLD M. *Union Solidarity*. Minneapolis, Minnesota, University of Minnesota Press. 209 pp. $3.00.

ROTHNEY, JOHN W. M. *The High School Student*. New York, Dryden Press. 271 pp. $1.90.

SCHULER, E. A., MOWITZ, R. J., and MAYER, A. J. *Medical Public Relations*. Ann Arbor, Michigan, Edwards Brothers. 228 pp.

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